

2016 GWMP Stakeholder Advisory Group Minutes

October 25, 2016
South Lake Tahoe, CA

Att. 1

Members Present

Ivo Bergsohn (IB)	John Larson (JL2)
Brian Grey (BG)	Ken Payne (KP)
Scott Carroll (SC)	

Members Excused

John Thiel (JT)	Jason Burke (JB)	Rebecca Cremeen (RC)
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Members Absent

Joey Keely	Jenn Lukins	Bob Loding
Harold Singer	Doug Dame	
Greg Daum	Robert Lauritzen	

Presentations

I. Bergsohn, STPUD	J. Larson, TKPOA
E. Ingbar, Gnomon (Via Phone)	G. Pohll, UNR-DRI
	L. Dernbach, LRWQCB

Others Present

Michelle Sweeney, Allegra Communications
Richard Solbrig, STPUD
Brad Herrema, Brownstein Hyatt Farber Schreck (Via Phone)
Heidi Baugh, STPUD

OPEN FORUM

KP: Extended kudos to all involved in the Tahoe Valley South Basin Groundwater Management Plan group. Very impressed with the group staying on top of the grants and the outstanding example we are providing for others to model.

APPROVAL of MINUTES

- No one presented any changes or corrections to meeting minutes from May 27, 2016 Workshop 1. (Attachment 1).
- Meeting Minutes will be posted on the District's website.

South Y Groundwater Sampling (Lisa Dernbach, LRWQCB) - note this item was added after the Agenda was final.

Two issues on PCE contamination at the Y:

- Cleanup and abatement order for the former Lake Tahoe Laundry Works (LTLW) site. Potentially Responsible Parties (PRPs) have been operating under interim remediation plan. There is still off site PCE that needs to be investigated. RWQCB included in the Cleanup and Abatement Order lots of comments that were received during the comment period. The Order is currently under review. Lisa thanked everyone who sent comments. We are waiting



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for the Order to be issued. There might also be a public meeting held to discuss opening some of the more contentious aspects.

- RWQCB strongly believes there is a second source of PCE in the area that is responsible for the contamination and shutdown of Lukins #2 and #5 public water system (PWS) wells and Rockwater Apartments well (small community water system well) on Emerald Bay Road. LRWQCB released findings in January and are currently waiting to do a supplemental study after the District's extraction well suitability investigation for Lukins Well #4 is completed. LRWQCB is also hoping for results of Tahoe Keys Water Company PCE survey. L. Dernbach (LD) is seeking to solicit SWRCB for additional funds for this supplemental PCE investigation that will be more focused along Emerald Bay Road, west of the "Y" to narrowing down the second inferred PCE source. LD anticipates LRWQCB to investigate deeper into the aquifer to find where it's migrating. The supplemental PCE investigation is envisioned to be performed during Spring 2017. Lisa indicated she could not release any information regarding the second source of PCE right now. Lisa will provide a snapshot map of the area to DRI.

2016 GW Management Activities (Presentation, I. Bergsohn, STPUD)

South Y Extraction Well Study

- Final report on this work was completed in June and has been posted on the District's Website. All Groundwater Management documents, activities, etc. to be migrated to the District's webpage, and building on this in the upcoming year.
- Ivo recommended that the group take a look at the Final Report Conclusions and Recommendations in Chapter 6, and also the Table of Extraction Well Alternatives (Table 6-1).

Prop 1 Funding/South Y Remedial Alternatives Evaluation

- A number of ideas for Prop 1 Funding were received from the SAG following the May Workshop. From these ideas it was proposed that the District move forward and conduct a Feasibility Study (FS) to identify the most cost effective means to remove PCE contaminant mass from the South Y Area; Lynn Nolan (LN) submitted a Pre-app for the FS on behalf of District, in partnership with LBWC and TKPOA in July. A copy of the Pre-App is provided as Attachment 2 of the Meeting Materials
- Two items we would like to obtain through the SAG:
 - 1) Statement of Disadvantaged Community Support (City of South Lake Tahoe and El Dorado County). Statement says, we recognize and support disadvantaged communities in our area. (General letter of support.) Please provide them to Ivo by mid-November so we can include all support letters with the final application which is due by November 28, 2016. Ivo has provided a sample letter with today's material. Draft final application is to be completed by Veteran's Day. Ivo will distribute the draft full proposal.
 - District is planning to do pre-sampling to compliment the sampling that LRWQCB is performing. There have been eight wells (public water supply wells in South "Y" area affected) identified from which to collect samples. (District's Clement Well site; Lukins Bros (LB) 4, LB 2, LTUSD Tahoe Valley Elementary School



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- well). We will combine these results and with the TKWC well monitoring to complete the current picture of contamination for the South Y area.
- Along with sampling and prior to the feasibility study, DRI provided a cost proposal for a fate and transport (F&T) model to work with District's existing model. This F&T model will simulate up to 15 remedial alternatives, provided by LB, TKWC, and STPUD.
 - The new F&T model will be a key component to assist in our feasibility study for determining the most cost effective alternative. We are looking to identify 3-5 most favorable alternatives. Criteria will be capability to contain plume, efficiency of mass removal, and clean up times.

GSA Formation Notification II (Attachment 3 – NOI)

- In September, the District held a Public Hearing to receive public comment regarding its election to serve as the GSA for areas within TVS Basin, outside its service area. Following the hearing the District submitted a second GSA Formation Notification to DWR. If there are no other GSA notifications submitted within the next 90 days, on December 28th, the District in cooperation with the El Dorado County Water Agency (EDCWA) will be the GSA for the areas that lie within the boundaries of the groundwater basin, but outside the District's service area. Submittal of the second GSA Formation notification and MOU with EDCWA will enable the District to manage groundwater across the full extent of the TVS Basin. This will also allow the District to implement its existing GWMP across the full extent of the TVS Basin, thus satisfying one of the primary requirements for Alternatives to GSPs. Should DWR accept the District's existing plan as a suitable alternative, an enormous amount of time and money could be saved, as the existing GWMP could be amended and used as an Alternative GSP. The MOU between the District and EDCWA is attached as Exhibit D, of Attachment 3 of the Meeting Materials.

GSP Alternative/ Analysis of Basin Conditions (Attachment 4 – GSP Emergency Regulations)

- The new GSP regulations allow for the submittal of an existing AB3030 GWMP or an Analysis of Basin Conditions as a potential Alternative to a GSP. The District is planning on submitting both the 2014 GWMP and an ABC for DWR review and evaluation. The ABC will be completed by DRI, using the updated TVS GW Model. The ABC must demonstrate that the Basin has operated within its sustainable yield over the past 10 years (2007 – 2016); without any undesirable results. These are defined in the GSP Regulations as:
 - Chronic Lowering of Water Levels
 - Reduction in Groundwater Storage;
 - Seawater Intrusion;
 - Degraded Water Quality;
 - Land Subsidence; and
 - Depletions of Interconnected Surface Waters
- With regards to Degraded Water Quality, the District is considering an analysis to show that operating together; the District, LBWC and TKPOA have sufficient water production capacity



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to satisfy all drinking water demands with the current levels of groundwater contamination within TVS Basin. As degraded water quality is the primary groundwater concern within our basin, the District requested feedback from the SAG on this approach, defining what is significant and unreasonable, and how to define a minimum threshold for this undesirable result.

- From The GSP Regulations, the definition of the minimum threshold for degraded water quality was presented to the SAG. IB explained that under the proposed approach, should the current level of groundwater contamination result in the total source capacity of PWS wells to fall below a minimum threshold, the groundwater contamination is at a level which threatens the ability of water purveyors to produce sufficient quantities of groundwater to meet all drinking water demands, and actions are needed to correct this result. SAG

Discussion:

- JL: Keys has spent about \$1mil to date, over the next 5 years will have to spend significantly more. What level of PCE do we need to get below to make this reasonable? No funding coming to TKPOA. Our property values are reduced, water supply affected.
- BG: initial off the cuff, seems like municipal wells are held to as cost of operation. Threshold seems to be that Tahoe Keys is threatened but not impaired. Meets the threshold of degraded water quality. Curious of potential funding in the future and whether they will help. More curious about individual well purveyors.
- JL: Well 2 designed to operate for 2-3 years. With that well off line, won't be enough water in the Tahoe Keys because that will happen during high demand period. What do we do then? 35 micrograms per liter on a medium basis. Landscaping would have to die; Tahoe Keys Marina would need to go off line. Pretty ugly future.
- Ivo: Is there a benefit to using concentration contours to defining minimum thresholds? Such as is the plume situated within a capture zone or source water protection area for a drinking water supply? What actions could Lahontan take to cause more effective containment and cleanup or mass removal of that? Would there be any assistance? How do you see Lahontan responding.
- BG: Information would have to be evaluated and investigations would be necessary. It would give them information but no i_____?.
- JL: I have worked for 12 years as an independent consultant on PCE contamination cases, this is the first one where no one has defined the plume.
- BG: information shown as within a capture zone. Level of information, level of previous investigations, make decisions and assign liability. We will always be left with unknown in these situations. In terms of added support and value, not giving us anything to point definitively to a party that we would need to define to finance the cleanup. Legacy situation of issues more than 20+ years after the damage has been done.



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- KP: Sounds like the program needs to be defined and developed in order to be enforced. Currently there is no program and no definition and therefore no way to enforce.
- IB: How do you recognize the difference between the threat to a 200 gpm or 1400 gpm well? Both are threats, but at different levels. How do we roll that into a minimum threshold? This is something that is being thought about. In the current situation, we could make a case that the water companies within the basin have adequate production to meet the current demands. There is degraded water quality, but it has not reached a level where it is significant and reasonable. If a community identifies it as a real problem, how does the local RWQCB recognize that? Does it cause the prioritization of “important” and qualify it with a need to go after, or we need to continue with our hands tied until a responsible party is found.
- RS: ... is an issue of boundaries and not ability to provide demand.
- IB: Minimum threshold needs to be a number. GSP is supposed to provide metrics. Could use one minimum threshold with numerous milestones. For example, added risk of water company solvency could possibly be a milestone; but not the threshold showing ability to provide adequate drinking water?

Expanded Outreach (Attachment 5 – IB Notes)

- SAG discussed considerations for expanding outreach to small community water systems and private well owners. Some of these include motels and lodges. Idea to possibly recruit someone from the tourist industry for the SAG in an effort to help increase public awareness for drinking water needs and develop materials to increase awareness in the community about its drinking water supply. KP “...may not want to engage the tourist industry too soon; First we need to have a management plan for the South “Y Area, after which would be a better time to bring them on board. Michelle S: Asked about the school board member position being left blank on the SAG member list. Another meeting attendee advised they have hired the former member’s replacement, Steve Brennan. Ivo will follow-up.

2016 DSWPA Mapping Update (Presentation, E. Ingbar, Gnomon)

- E. Ingbar provided presentation by telephone. Goal for Drinking Source Water Protection Map is so that everyone (general public as well as water purveyors) can see big picture. Maps are a great way to interest the public. Gnomon is currently working on map improvements—accuracy, i.e. verification, removing duplicate information. Part of the goal is for others to be able to maintain this map/information in the future relatively easily. To do so, there needs to be a data store that is easily maintainable and will include well locations, data, contamination information, spills, cleanups, new locations, etc. For this we need to define how we share information, what is okay for public to see and what purveyors want to see. Issues/Challenges include;
 - Staying current
 - Data Sharing and



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- Types of Sharing Results
- Ivo to send out the single page questionnaires by email to all SAG members; Summarize responses, return to SAG by email Once reviewed we hope to get results out to member agencies by December. DSWP map files to SAG member agencies (internal use). Will send arch project file to whoever would like to have it in order that you can interact and get an idea how it works and what the needs are. Give people in your agency a better idea so we can form the data sharing.

South Y PCE Investigation (Presentation, J. Larson, TKPOA)

- JL provided a brief update of PCE investigation and an overview of work underway and to be completed shortly. During work being done by District on LB Well 4, Tahoe Keys wanted to contribute to effort and compiled data for this area. A draft report has been generated. Conference call set for November 2. GEI Consultants compiled a data set – for which the Regional Board was a great help. Out of about 1000 total data points, only 249 were useful and also used soil samples from 5 sites. They also used PCE data from all three water purveyors. JL presented a map of the South Y Wells - Allows us to see a spatial review of data from south end (up gradient) to north end (down-gradient) going back to 1980's. Key issue: No sampling for up gradient wells (data gap there). Data gap in down gradient wells in the earlier sampling. Water purveyors' data is fairly complete. Maximum groundwater PCE concentrations follow groundwater flow direction.
- Most recent groundwater PCE concentration slide show approximate plume boundary that has probably changed over time as other wells in vicinity have stopped pumping. It was recommended we go down gradient and install multi-layer monitoring wells.
- Slide of vertical distribution--variant of PCE results. Tells us that PCE is heading to Tahoe Keys; it is at least in Well 2 and we have 2.7 micrograms in Well 1. We are discussing the possibility of operating Well 2 on a year-round basis in hopes of intercepting the plume and saving other wells.
- Findings are that due to other wells being taken off line, the PCE plume is heading toward the Keys and the Lake.
- In the opinion of GEI, LTLW is the source.
- Well 2 graphs show increase from 1989 to current use
- Well 1 (almost half of our capacity) graph shows increase of PCE from 1989 to current
- Need to fill in data gaps where possible; implement quarterly sampling; install new multi-level monitoring well. TKPOA is doing bi-weekly sampling and more.
 - IB suggested that multi-level monitoring well be moved up gradient of TKPOA wells for use as a sentinel well. GP asked about any other wells in the area.
- Ivo: would like to get the electronic files from GEI. JL indicated that Ivo should contact Ryan and request the information. Ivo will send those files to Greg at DRI.
- Ivo saving a copy of JL's PowerPoint.

GW Modeling Evaluation Update (Presentation, G. Pohll, UNR-DRI)

- Provide update on hydrologic analysis. Groundwater recharge analysis; working hard on analysis of basin conditions (ABC).



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- Using this model with other data to support that effort.
- Creating GIS tools to assist in reporting to DWR
- The Analysis area is larger than TVS GWB. Because most of the groundwater recharge flows from the upper regions surrounding the basin.
 - Precipitation – drives groundwater recharge in the area. We are basing our findings off data from four climate stations (FLL, Echo peak, Heavenly, Hagan's Meadows—most important in terms of describing what is accurately happening in the basin). We are trying to develop more simplified methods. Most precipitation occurs on the west side of the analysis area (75"/yr); on the eastern side (Heavenly Valley) it's 35"/yr. Get 334,000 acre feet per year, which includes both wet and frozen. 11-12% actually goes into the ground and becomes recharge.
- Average over the area, includes wet and frozen precipitation.
- Hagan's Meadow site from 1979 showed an average 31" at that station. Lots of variability.
- We will use this information to create a water year classification for use in reporting to determine type of year, i.e., wet year, dry year, etc. The other collection areas are not representative of the Tahoe area.
- Used Hagan's Meadow to develop estimates of groundwater recharge based on daily precipitation at all stations.
- Graph shows a much greater recharge than amount removed by groundwater pumping.
- Average recharge is 40,000 acre feet per year; pumping is about 8,000 acre feet per year. Most of the precipitation is falling on the west side of the basin. Less recharge is in the central area. 2016 pumping was 6,000 (down from 8,000) due to conservation.
- Presented 2010 recharge by season. Fall and winter minimal recharge. Most recharge occurs in spring. Some localized recharge during summer thunder storms.
- Updated groundwater model to include 2015.
- Analysis of basin conditions. Alternatives to a Groundwater Sustainability plan. Key point demonstrates operation within its sustainable yield over a period of at least 10 years. This will be fairly easy to prove.
- Describing a general outline of Basin condition report. Basin setting, then sustainable yield, then thresholds for components (levels, storage etc.) We need to define the minimum thresholds that define groundwater levels.
- By monitoring Hagan's meadows, if precipitation is above 10" we know there is nothing to worry about, but if it's less that's when we would need to monitor water levels at key locations to see if water levels are declining rapidly. Groundwater storage needs: –precip is 31-32"; if the precip decreases then groundwater storage use goes up and groundwater levels go down. Greg did not believe using 31-32" as the threshold was a good idea. We have to think about where on this curve we would settle. Change in groundwater levels is same as change in groundwater storage. We can discuss this further.
- JL asked about a projected curve for use. With TRPA growth restrictions Ivo feels it's very manageable. RS: our production has gone down over last years. We are investing in increased storage to deal with fire flow. JL indicated there should be an explanation rather than a flat line indicating use. Issues have to deal with tourism use rather than build-out issues.



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- Water Quality: PCE issues. Is the extraction contributing to the quality issue? Groundwater pumping in Keys and Lukins has accelerated or changed the flow of PCE contamination to some extent. From a total perspective if there were no boundaries the water supply in the basin can support the need.
- JL - The issue is a localized one, between Y and the Lake, to meet needs in that specific area due to this legacy groundwater contamination. Lukins pursued emergency funding and was denied because they had access to STPUD water. It will be the same with Tahoe Keys.
- IB - One of the funding options we are pursuing requires that we pursue cleaning up the aquifer and tying into another water source will not satisfy the funding condition. We need to get our heads around dealing with the problem--maybe a hybrid approach toward the bigger picture. I don't want us to have passed this threshold and we can't handle it, however there are significant impacts. For the grant, we saw the first step is how to best manage this problem. This exercise at hand will help up determine this.
 - Ken said there are two different groups that would address these issues
 - Grants group would review a feasibility
 - Compliance group would (cannot hear)
- IB - We are currently looking for best alternatives for the PCE issue
 - Very costly and long term effort. Important to inform responsible party regarding the road we are going down, and get their engagement.
 - District has not signed on for operation and maintenance for remediation, not sure who that would be, maybe the Water Board, or RP(s)?
 - GSAs were not envisioned to fill that role. Helping the process along is something we, as a GSA can do. But when it comes to actually putting it in the ground, operating and maintaining, we are not in a position to fill that role.
 - JL asked what the water quality objective is for Lake Tahoe with respect to PCE.
- GP - Subsidence is not an issue for our basin.
- GP- Interconnection with surface waters
 - Precipitation is over 300,000 AFY; average runoff is 124,000 acre feet per year. Used model to calculate for increased pumping and influence on streams. 1983 to 2015
- GP -Reporting tools
 - Quantify change to groundwater storage over time (change in groundwater elevation). We have the tool to do this, we just need to refine it. Would probably just apply one number to the entire basin.

Next Steps

For Greg to update 2016 water model, we need updated production numbers by November so it can go through October. Ivo will get that from Jjohn Larson and Jennifer, and lakeside. He will work to compile this info. Will write report in Jan/Feb and release in March. Must be completed and issued prior to April 1.

MEETING ADJOURNED (12:00 PM)



1 April 2017

Att. 2

Acting Director William Croyle
California Department of Water Resources
P.O. Box 942836
Sacramento, California 94236

Submitted online via DWR's SGMA portal:
<http://sgma.water.ca.gov/portal/alternative/all>

Re: Alternative Submittal (existing plan) from South Tahoe Public Utility District (6-005.01 Tahoe Valley Tahoe South Basin)

Dear Director Croyle:

The Nature Conservancy (TNC) appreciates the opportunity to comment on this alternative submittal from South Tahoe Public Utility District (basin 6-005.01) under the Sustainable Groundwater Management Act (SGMA).

Background on Our Interest

TNC is a global, nonprofit organization dedicated to conserving the lands and waters on which all life depends. We have over 100,000 California members and seek to achieve our mission through science-based planning and implementation of conservation strategies. TNC was part of a stakeholder group formed by the Water Foundation in early 2014 to develop recommendations for groundwater reform and actively worked to shape and pass SGMA.

Our reason for engaging is simple: California's freshwater biodiversity is highly imperiled. We have lost more than 90 percent of our native wetland and river habitats, leading to precipitous declines in native plants and the populations of animals that call these places home. These natural resources are intricately connected to California's economy providing direct benefits through industries such as fisheries, timber and hunting, as well as indirect benefits such as clean water supplies. Given the inextricable connection between groundwater and surface water, SGMA must be successful for a sustainable future in California.

California continues to use more water than nature provides. While surface water rights and access to surface water may be curtailed, the balance of water consumed is coming from groundwater – an estimated 60% California's water during the drought was supplied by groundwater. SGMA provides a path for California to sustainably manage groundwater so that the critical groundwater reserves are available when surface water is not.

SGMA is now law, but implementation is just beginning. The success of SGMA depends on bringing the best available science to the table, engaging all stakeholders in robust dialog, providing strong incentives for beneficial outcomes and rigorous enforcement by the State of California.

The recently submitted alternatives marks the first opportunity for the Department of Water Resources (Department) to hold local agencies accountable for sustainability. We ask the Department to fully exercise its authorities granted under SGMA to ensure the adequacy of plans. Given our mission to preserve the plants and animals on which all life depends, we are particularly concerned about the inclusion of nature, as required, in groundwater sustainability plans (GSPs).

"Functionally Equivalent" Requires Fully Addressing Nature's Water Needs

This South Tahoe Public Utility District (STPUD) alternative submittal is based upon an existing plan, the *Tahoe Valley South Basin (6-5.01) 2014 Groundwater Management Plan*. To meet the requirements provided under SGMA, the alternative submittal must:

1. Provide "(a) plan developed pursuant to Part 2.75 (commencing with Section 10750) or other law authorizing groundwater management." (23 CCR §358.2(b)(1)); and
2. "(S)hall explain how the elements of the Alternative are functionally equivalent to the elements of a Plan required by Articles 5 and 7 of this Subchapter and are sufficient to demonstrate the ability of the Alternative to achieve the objectives of the Act." (23 CCR §358.2(d))

To be "functionally equivalent," the alternative submittal must fully incorporate the numerous requirements to address nature's water needs under SGMA. While there are certainly additional provisions regarding nature's water needs, for the purposes of our review, we focused on the following:

1. Are groundwater dependent ecosystems (GDEs) identified? (23 CCR §354.16(g)) Are GDEs and surface water dependent species included as beneficial uses? (23 CCR §354.10(a))
2. Are interconnected surface waters identified and are estimates of the quantity and timing of any depletions specified? (23 CCR 354.16(f), §354.28(c)(6)(A))
3. Do water budgets include water needs for managed wetlands and native vegetation, as defined water use sectors, as well as total surface water inflows and outflows? (23 CCR §354.18(b))
4. Do undesirable results and minimum thresholds describe potential effects on beneficial uses (especially GDEs), land uses (including recreational uses) and property interests (including open space and conservation lands), particularly

for the chronic lowering of groundwater, degraded water quality and depletions of interconnected surface waters? (23 CCR §354.26, §354.28, §355.4(b)(4)) Are these undesirable results being avoided? (Water Code §10733.6(b)(3))

5. Does the sustainability goal include the environment, and if so, does the plan include measurable objectives and interim milestones to achieve the environmental portion of the sustainability goal within 20 years? (23 CCR §354.30)
6. Does the monitoring network monitor impacts to beneficial uses? (23 CCR §354.34(b)(2))

Our specific comments related to the above questions are provided in Attachment A: TNC Evaluation of the South Tahoe Public Utility District (STPUD) Alternative Submittal (existing plan).

STPUD has taken notable steps in understanding and managing groundwater within the Basin but the 2014 Plan does not include material that meets the requirements of SGMA. The 2014 Plan specifically addressed compliance with SGMA, which had recently been adopted, as follows in Section 10.3, "(I)f the GWMP will serve as a basis for compliance with the SGMA, it would need to be augmented to comply with the requirements for a GSP over the next five to seven years".

We believe that a Groundwater Sustainability Plan is required to meet the requirements of SGMA for the Tahoe Valley Tahoe South Basin.

Thank you for fully considering our comments as you evaluate the adequacy of this alternative submittal.

Best Regards,



Sandi Matsumoto
Associate Director, Water Program
The Nature Conservancy of California

Attachment A: TNC Evaluation of STPUD Alternative Submittal (existing plan)

- 1. Are groundwater dependent ecosystems (GDEs) identified? Yes, but only in very general, alternate terms. Are GDEs and surface water dependent species included as beneficial uses? No – beneficial uses are not identified consistent with the SGMA direction.**

GDEs: (§354.16(g)) GDEs are not identified for the basin. An alternate terminology, "Stream Environmental Zone" (SZE) is utilized. It appears that SEZs is inclusive of most GDEs although the relationship between the two terms is not explained. SZE's are not, however, identified as to the type of vegetation community, which is necessary for evaluation and monitoring of the specific groundwater needs of each community.

Beneficial Uses: (§354.10(a)) Environmental beneficial uses as defined by the Water Resources Control Board and Bulletin 118 are not identified.

- 2. Are interconnected surface waters identified and are estimates of the quantity and timing of any depletions specified? No - the subject is inadequately addressed and it is acknowledged that further work is needed to meet SGMA requirements.**

Interconnected Surface Waters (§354.16(f)) Potential impacts of pumping on interconnected surface waters are discussed but they are not estimated in terms of quantity or timing. BMO#7 notes the need for further evaluation of potential effects of pumping on streamflow. Additionally, comments in the Functional Equivalency Checklist indicate that further work related to interconnected surface water has been contracted, which emphasizes that the Existing Plan as adopted in 2014 does not meet the requirements of SGMA.

Undesirable Results (§354.28(c)(6)) - Comments in the Functional Equivalency Checklist indicate that, "The minimum threshold for this impact is currently being developed pursuant to Action 1 of BMO No. 5". Again, it is made clear that this SGMA requirement was not met by the 2014 Plan.

- 3. Do water budgets include water needs for managed wetlands and native vegetation, as defined water use sectors? No - the Existing Plan does not include a water budget meeting the requirements of SGMA.**

Water Budgets (§354.18(b)) The comments in the Functional Equivalency Checklist indicate that further work is being done to meet this SGMA requirement for a water budget. Additionally, on Page 5-10 of the Existing Plan the following statement is made, "A formal and complete groundwater budget is not available".

- 4. Do undesirable results and minimum thresholds describe potential effects on beneficial uses, land uses and property interests, particularly for the chronic lowering of groundwater, degraded water quality and depletions of interconnected surface waters? No - information required by SGMA is not provided. Are these undesirable results being avoided? Unclear. Has the basin operated sustainably for at least the past 10 years? Unclear – the plan did not directly address the question.**

Undesirable Results: (§354.26) As noted in the Alternative Submittal undesirable results were most closely defined by Best Management Objectives (BMOs) in the 2014 Plan. These BMOs, however, are generally objectives for future things to do, are not the functional equivalent of undesirable results and the BMOs do not meet the standards of SGMA.

Minimum Thresholds: (§354.28) As noted in the Alternative Submittal Best Management Objectives (BMOs) were the closest thing to minimum thresholds in the 2014 Plan. These BMOs, however, are generally objectives for future things to do and are not the functional equivalent of minimum thresholds under SGMA.

Sustainable Ops for >10 years: (§358.2c3) This alternative submittal addressed the adequacy of the 2014 Plan rather than the Sustainable Ops for >10 years question.

- 5. Does the sustainability goal include the environment, and if so, does the plan include measurable objectives and interim milestones to achieve the environmental portion of the sustainability goal within 20 years? No - a sustainability goal was not established in the 2014 Plan.**

Sustainability Goal: (§354.24) A sustainability goal consistent with the requirements of SGMA is not included in the 2014 Plan.

Measurable Objectives (§354.30) Measurable objectives as required by SGMA are not included in the 2014 Plan.

6. Does the monitoring network monitor impacts to beneficial uses? No – the monitoring network does not monitor all beneficial uses.

Monitoring Network: (§354.34(b)(2)) Monitoring under the 2014 Plan is not tied to measurable objectives as would be the case with a GSP developed under SGMA and it does not include initial or ongoing biological analysis of GDEs.

SOUTH Y PCE MODEL INTERIM RESULTS

Att. 3



April 5, 2017

Greg Pohll, Susie Rybarski, & Rosemary Carroll

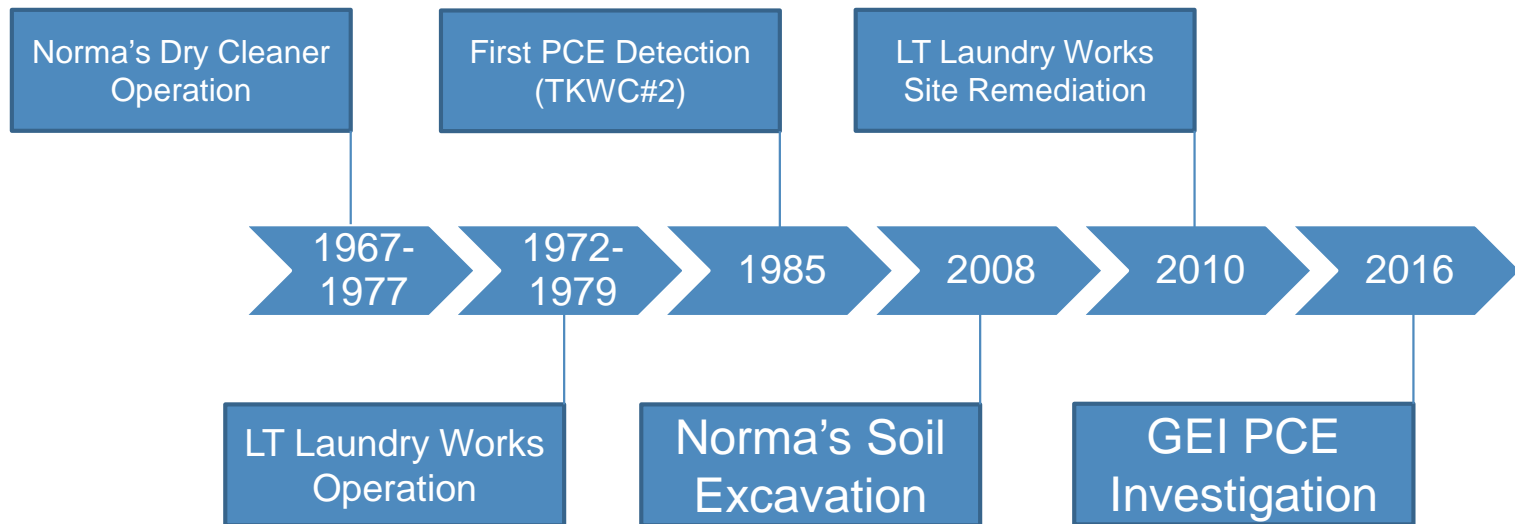
Outline

- Modeling Objectives
- Historical Context
- Regional/Local Models
- Modeling Approach
- Results
- No Action Scenario
- Next Steps

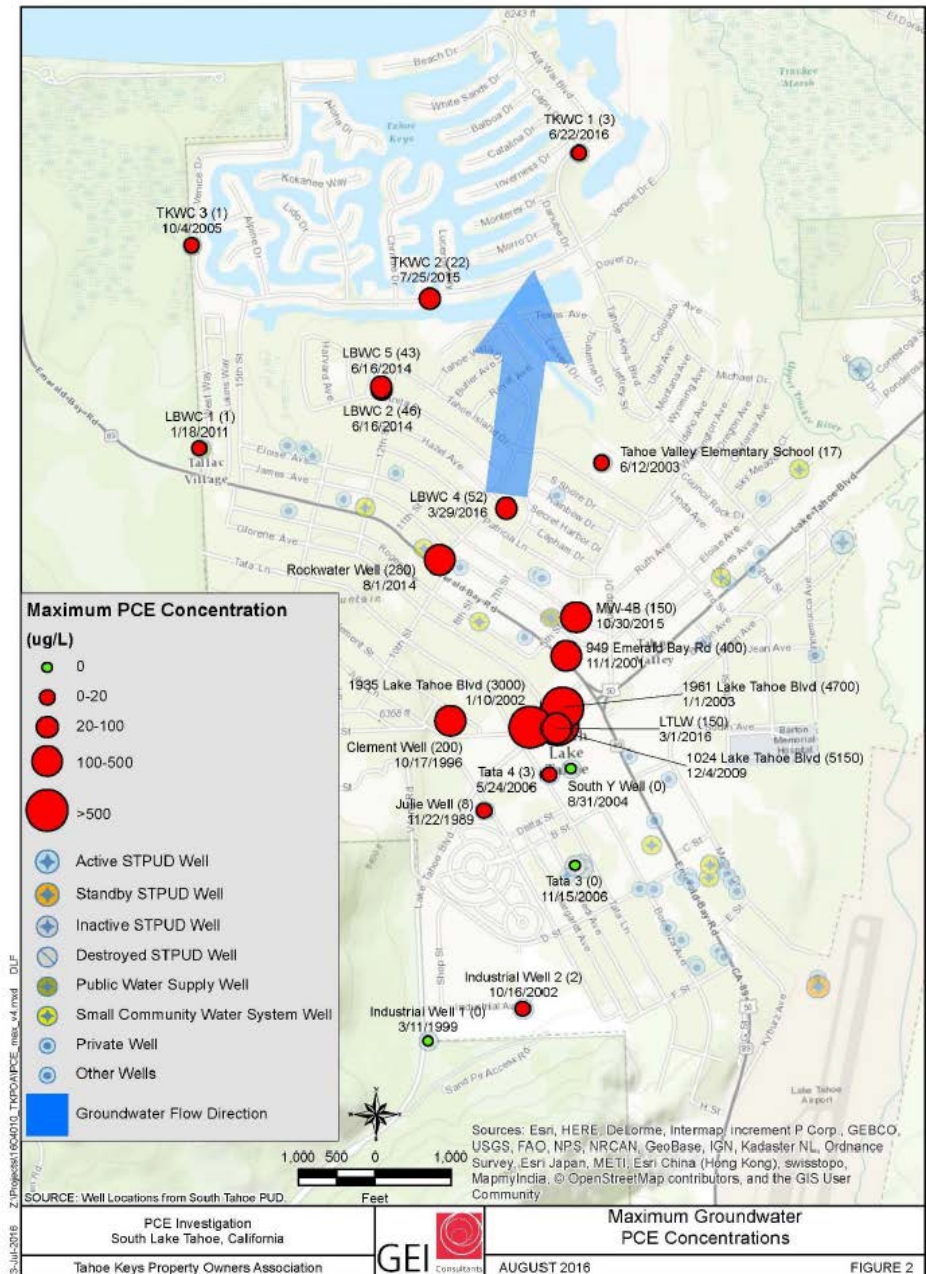
Modeling Objectives

- Develop a flow and PCE transport model of the South Y Area
- The model will be used to help optimize the design of the remediation system
- Once complete the model will be released to interested stakeholders for additional analysis

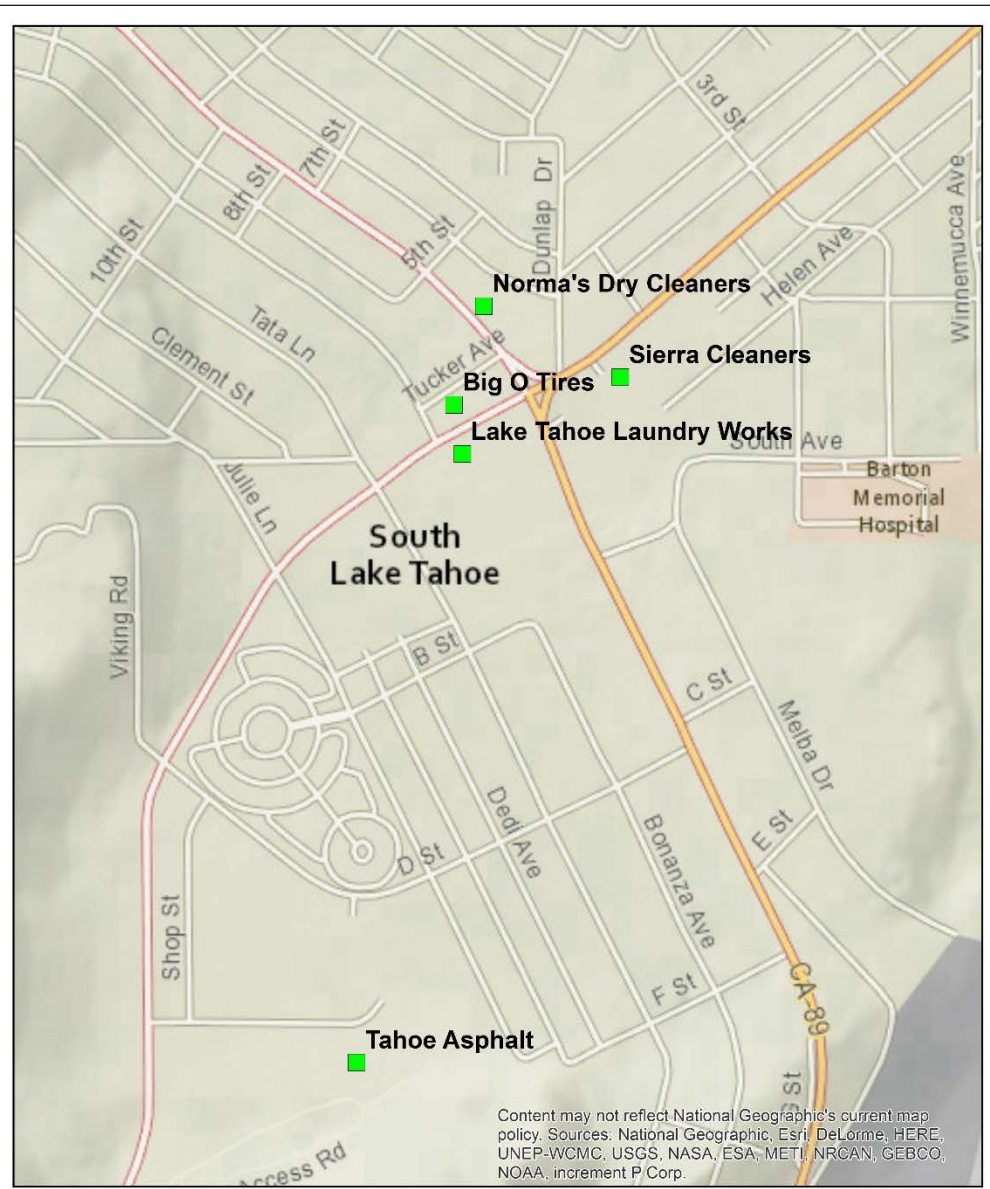
History



Maximum Groundwater PCE Concentrations



Potential PCE Sources

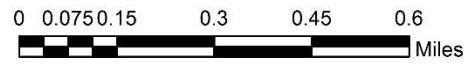


Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

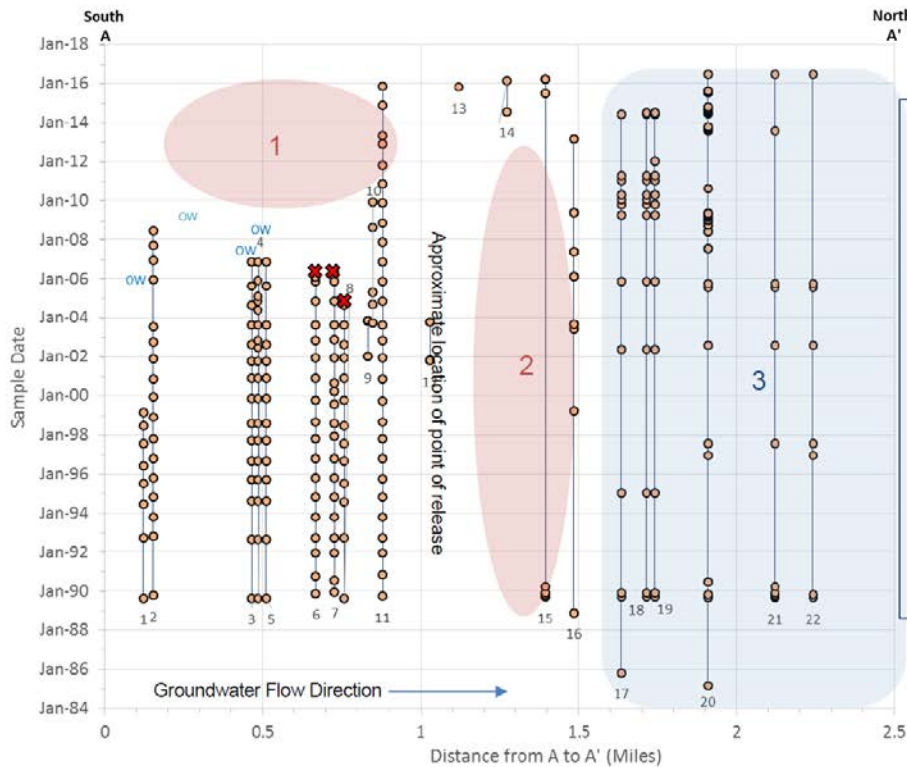


Legend

■ Potential PCE Sources

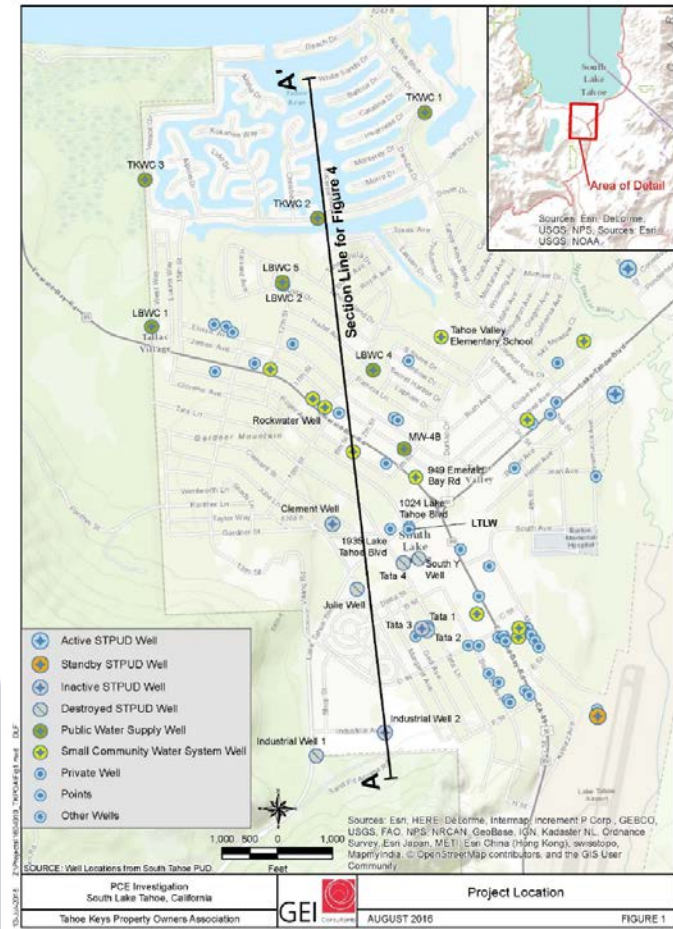


PCE Sampling History

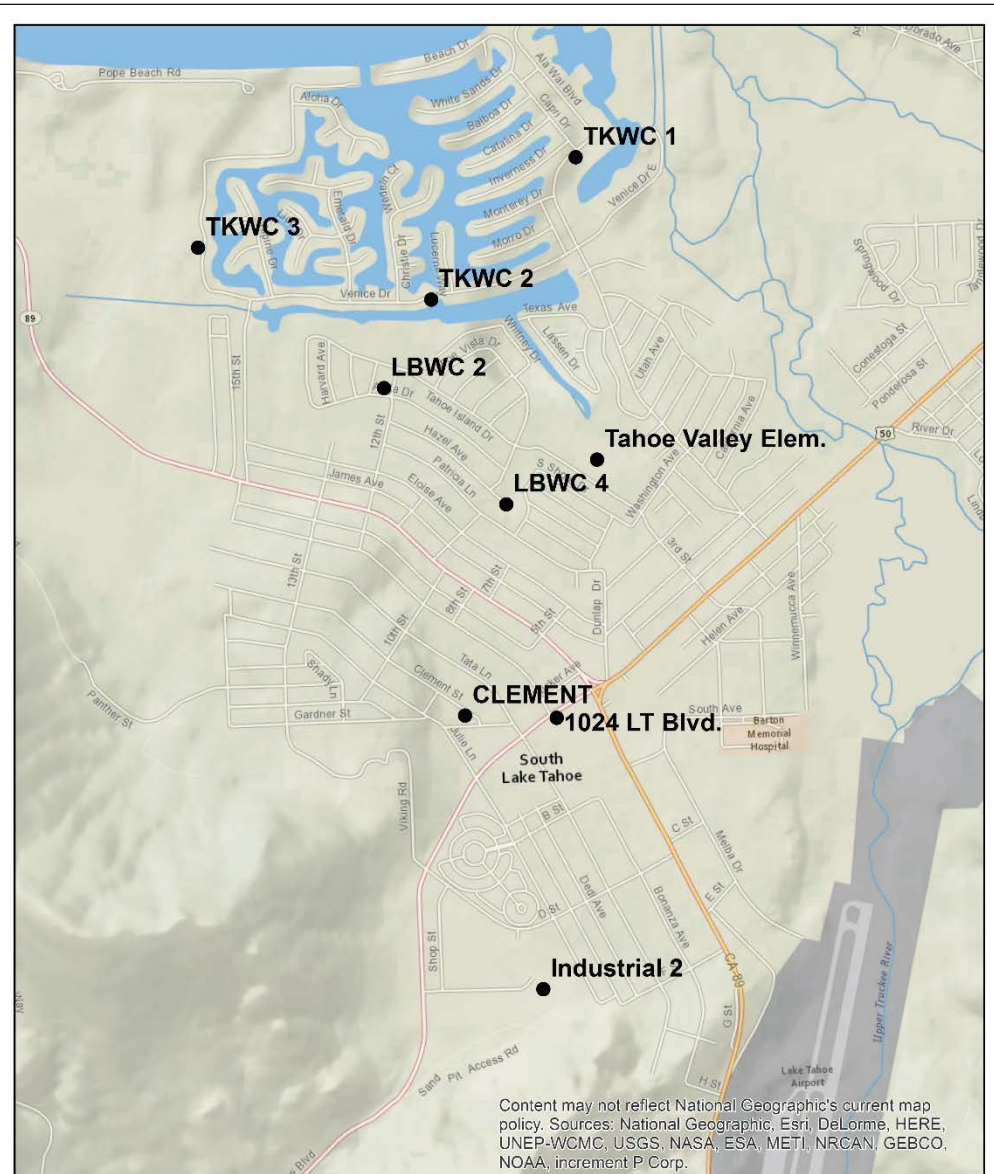


- LEGEND**
- 1 = Industrial Well 1
 - 2 = Industrial Well 2
 - 3 = Tata Well 2
 - 4 = Tata Well 3
 - 5 = Tata Well 1
 - 6 = Julie Well
 - 7 = Tata Well 4
 - 8 = South Y Well
 - 9 = 1935 Lake Tahoe Blvd
 - 10 = 1024 Lake Tahoe Blvd
 - 11 = Clement Well
 - 12 = 949 Emerald Bay Road
 - 13 = MW-48
 - 14 = Rockwater Well
 - 15 = LBWC 4
 - 16 = Tahoe Valley Elementary School
 - 17 = LBWC Well 1
 - 18 = LBWC Well 2
 - 19 = LBWC Well 5
 - 20 = TKWC 2
 - 21 = TKWC 3
 - 22 = TKWC 1
- X** = DESTROYED
OW = CONVERTED TO OBSERVATION WELL

Zone 1: Data gap in recent sampling.
 Zone 2: Data gap in early sampling.
 Zone 3: Complete data record



PCE Concentrations



Legend

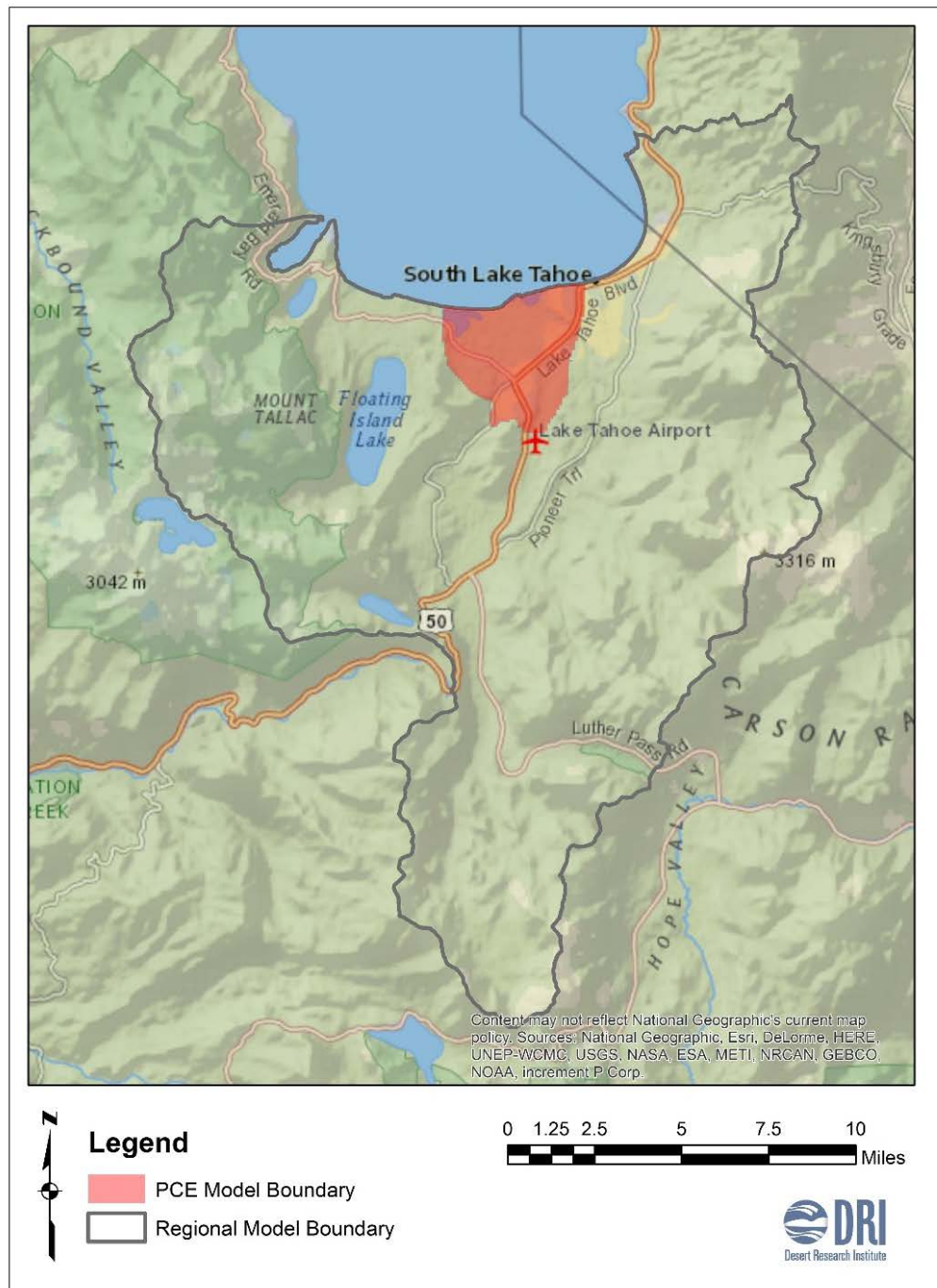
- PCE Monitoring Wells



Modeling Approach

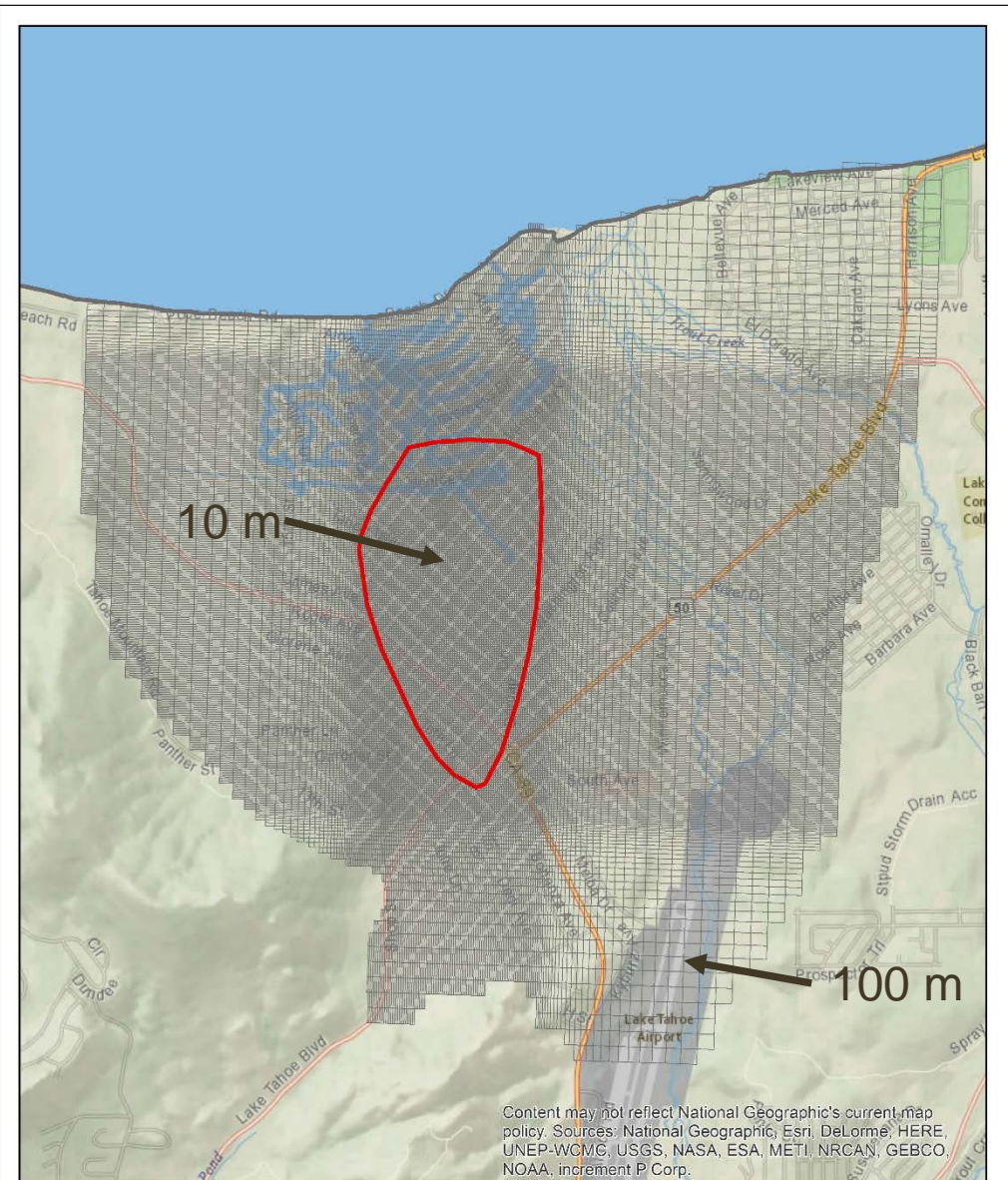
- Regional models
 - ▣ GSFLOW
 - ▣ MODFLOW
- Local model
 - ▣ MODFLOW
 - ▣ MT3D

Regional vs. Local Models



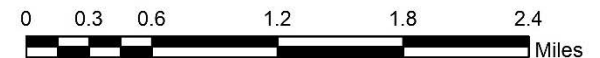
Local PCE Model

- Refined at 10 m around estimated plume extent.
- 4 model layers
 - Layer 1 = 40 m thick
 - Layer 2 = 40 m thick
 - Layer 3 = 80 m thick
 - Layer 4 ~ 125 m thick (bottom elev. 1600 m)



Legend

- PCE Plume Extent 2016
- PCE Model Grid



Production Wells vs. Model Layer

WELL	WATER SYSTEM	SOURCE CAPACITY (GPM)	STATUS	Perforated Interval (ft bgs)	Water-Bearing Zone	PCE	MODEL LAYER
Clement Well	STPUD	180	Inactive, Treated	80 -120	TKZ ₅	X	1
Julie Well	STPUD		Destroyed	65 - 100; 115-125	TKZ ₅ , TKZ ₄	X	1
South Y Center Well	STPUD		Destroyed	40' between 190 - 260	TKZ ₃	X	2
Tata Well #4	STPUD		Destroyed	85 - 125	TKZ ₅ , TKZ ₄	X	1
Industrial Well #2	STPUD		Abandoned, Observation Well	40-92; 97 -107; 110- 190	TKZ ₅ , TKZ ₄ , SLTZ ₃	X	2
Tata Well #1	STPUD		Abandoned, not destroyed	36 -105; 167 - 223	TKZ ₅ , TKZ ₄ , SLTZ ₃		1-2
Tata Well #2	STPUD		Abandoned, Observation Well	73 - 193	TKZ ₄ , SLTZ ₃		1-2
Tata Well #3	STPUD		Abandoned, Observation Well	55 - 75; 200 -220	TKZ ₅ , SLTZ ₃		1-2
LBWC Well #1	LBWC	720	Active Untreated	132 - 182	TKZ ₄		2
LBWC Well #2	LBWC	290	Offline, Impaired	132 - 156	TKZ ₄	X	2
LBWC Well #3	LBWC		Destroyed	70 -80	TKZ ₅	X	1
LBWC Well #4	LBWC		Abandoned, not destroyed	43 - 63; 68 - 78; 105 -115	TKZ ₅ , TKZ ₄	X	1
LBWC Well #5	LBWC	720	Offline, Impaired	141-180	TKZ ₄	X	2
TKWC #1	TKWC	1,000	Active Untreated	125 - 312	TKZ ₄	X	1-3
TKWC #2	TKWC	1,800	Active Treated (GAC capacity 550 gpm)	138 - 188; 348 - 414; 426 - 480	TKZ ₄ , TKZ ₂ , TKZ ₁	X	2-3
TKWC #3	TKWC	1,750	Active Untreated	175 - 300	TKZ ₄ , TKZ ₃	X	2-3
Tahoe Valley Elementary	LTUSD		Inactive	86 - 146	TKZ ₅ (?)	X	1-2
Rockwater Apartments	SCWS		Abandoned, not destroyed	70 - 99	TKZ ₅	X	1

Simulated Time Periods

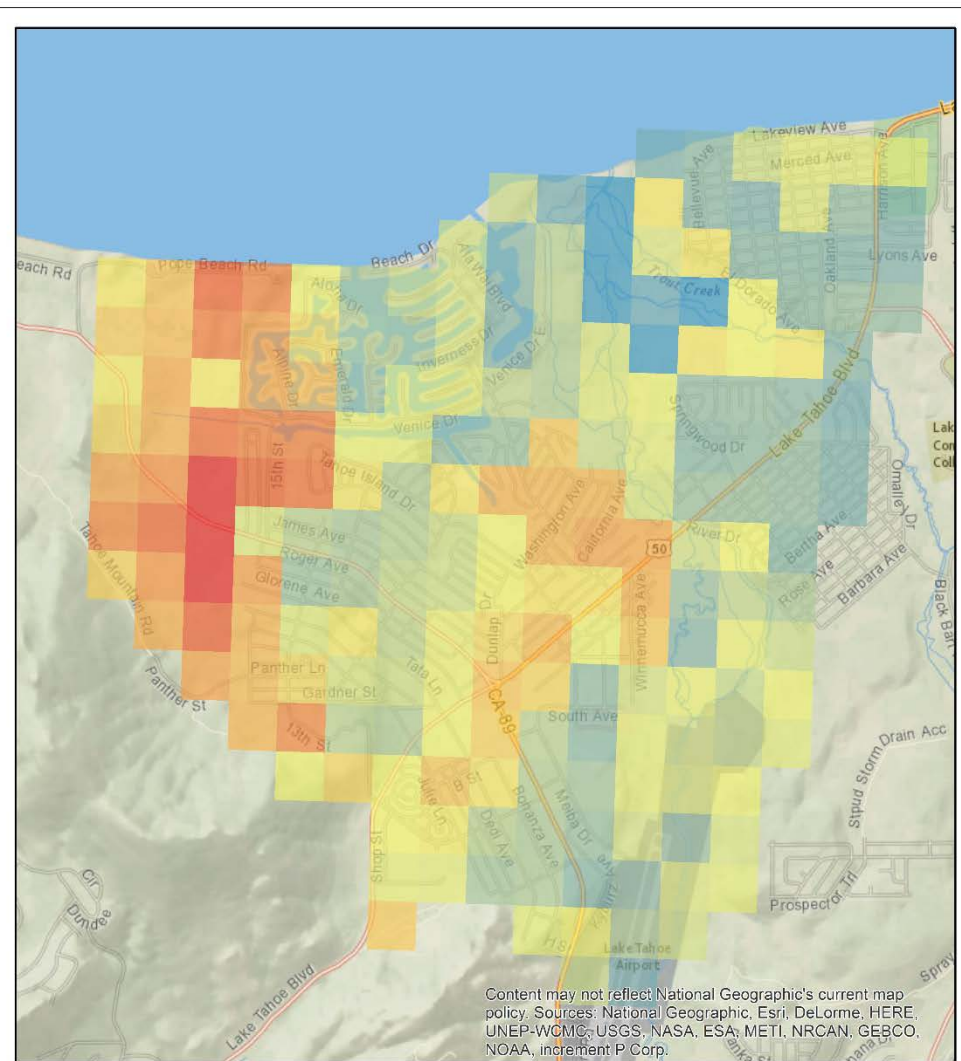
- Transient historical
 - ▣ 1971 – 2016
- Transient predictive
 - ▣ 2017 – 2066
- Time Steps
 - ▣ MODFLOW – 1 year
 - ▣ MT3D - adaptive

Inflows and Outflows

- Inflows
 - ▣ Recharge
 - ▣ Up-Gradient flow
- Outflows
 - ▣ Streams
 - ▣ Lake Tahoe
 - ▣ Wells

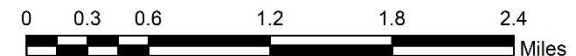
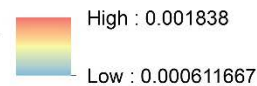
Recharge

- Extracted from regional groundwater flow model



Legend



Recharge (m/day)

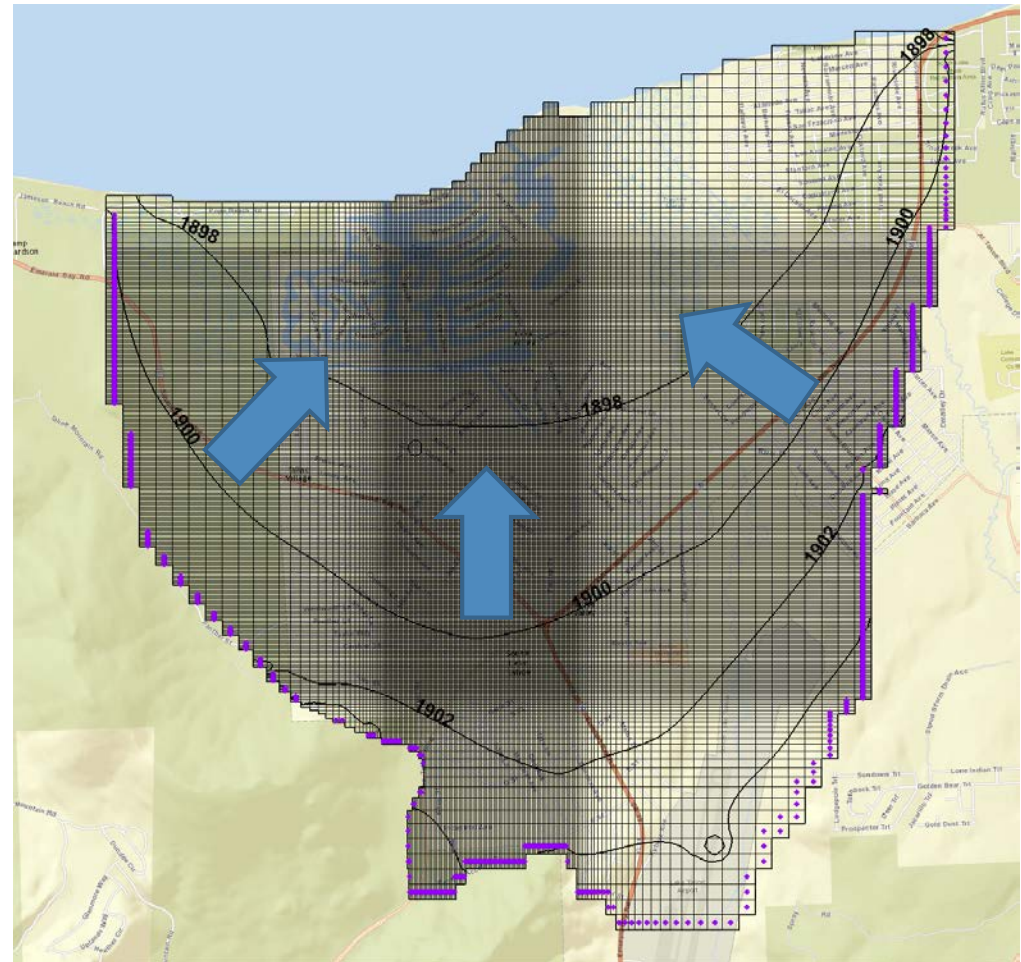


Specified Head Boundary Conditions

- Extracted from regional groundwater flow model

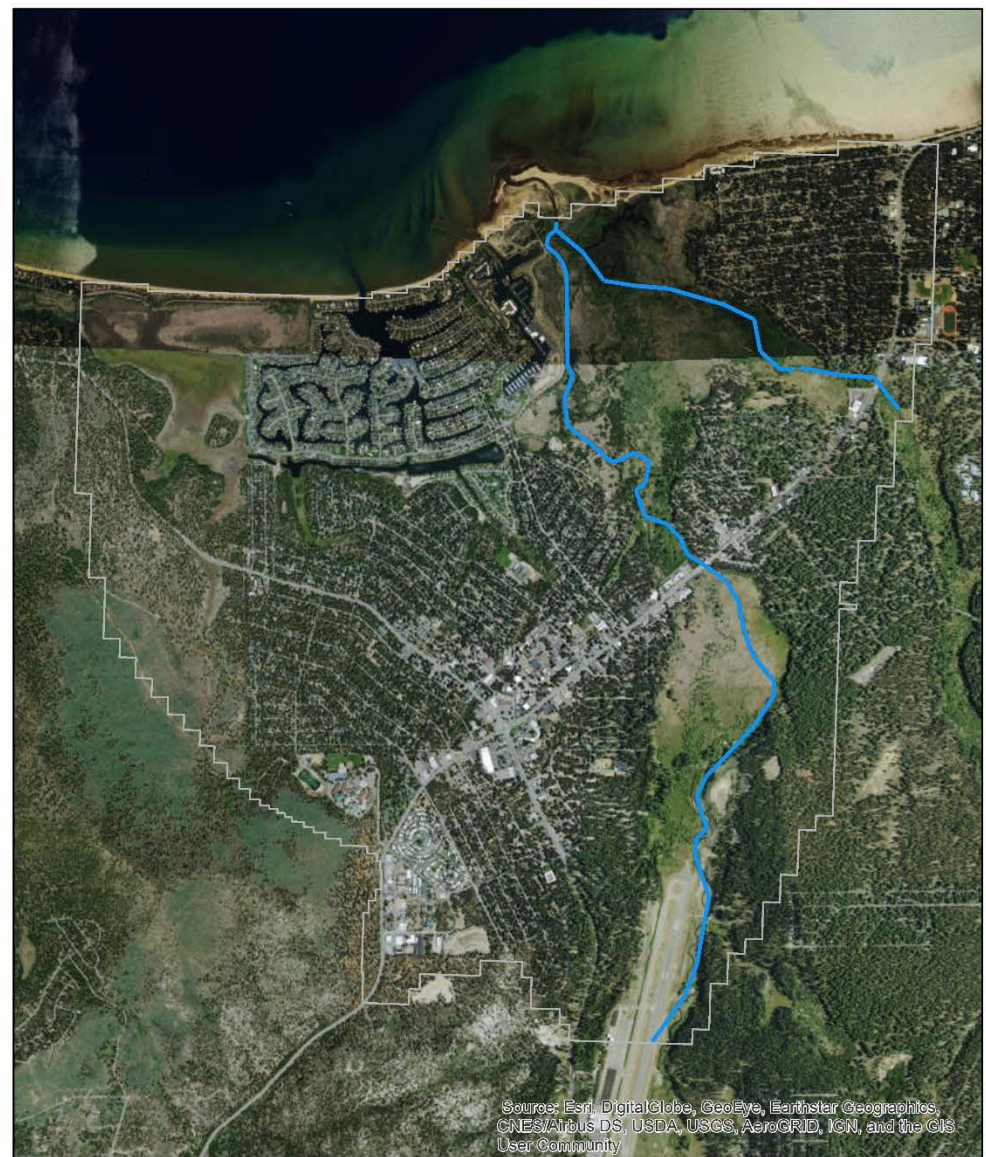
Legend

-  Flow direction
-  Groundwater level (m)





Streams

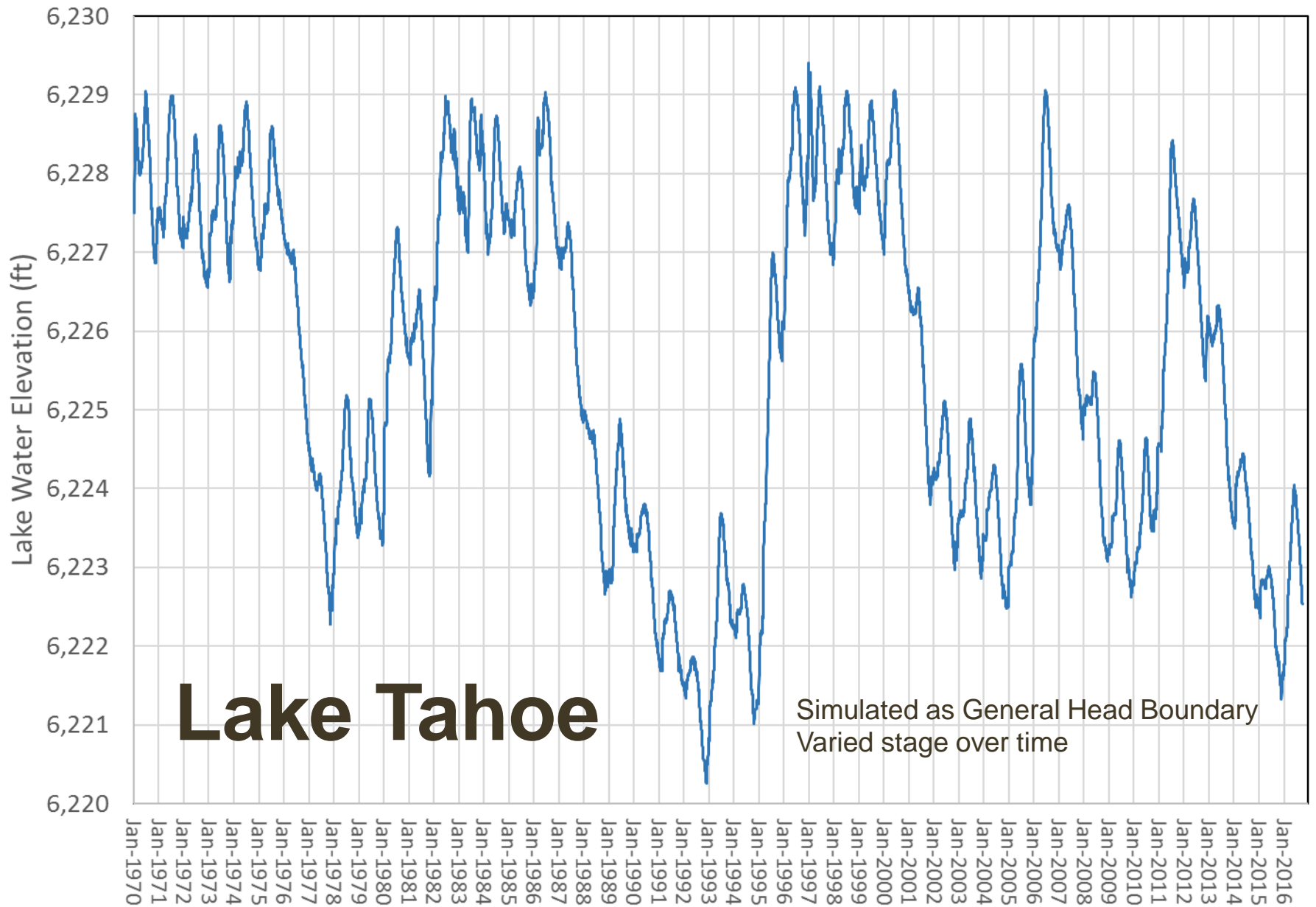
- Stream stage extracted from Digital Elevation Model (DEM)
- Simulated using MODFLOW River Package
- Location digitized from air photo



Legend

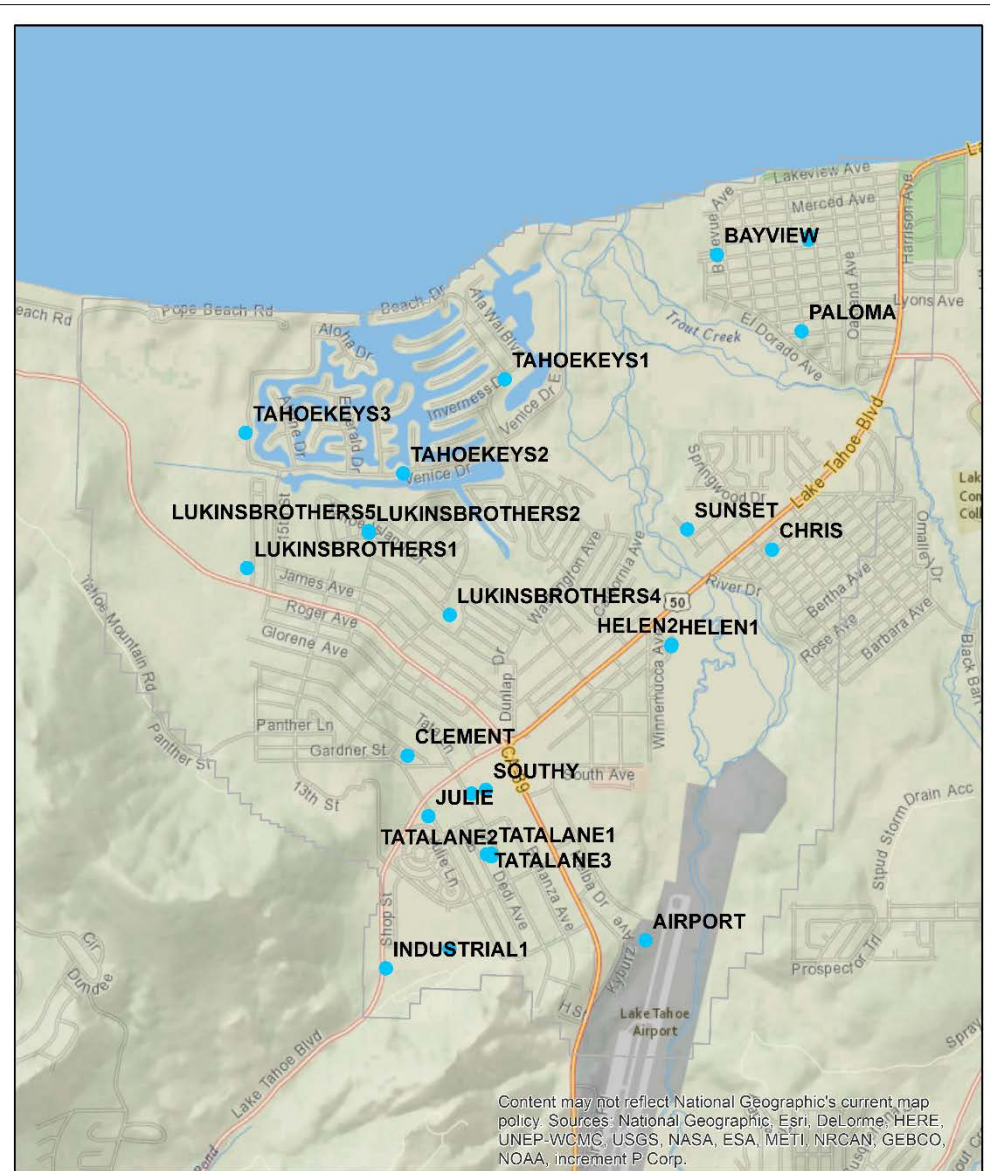
-  Streams
-  PCE Model Boundary





Wells

- Well rates varied annually
- Significant impact on plume movement



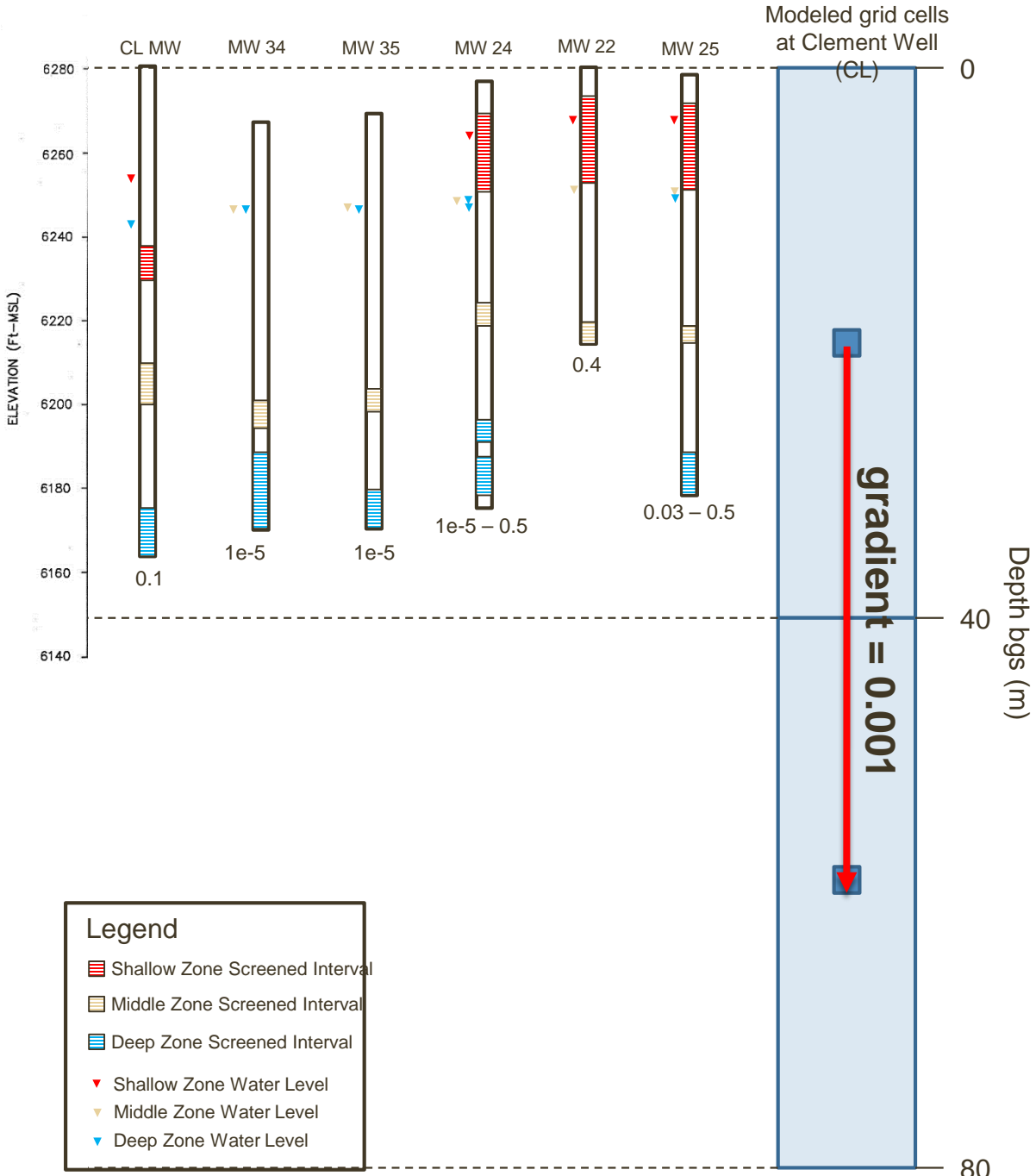
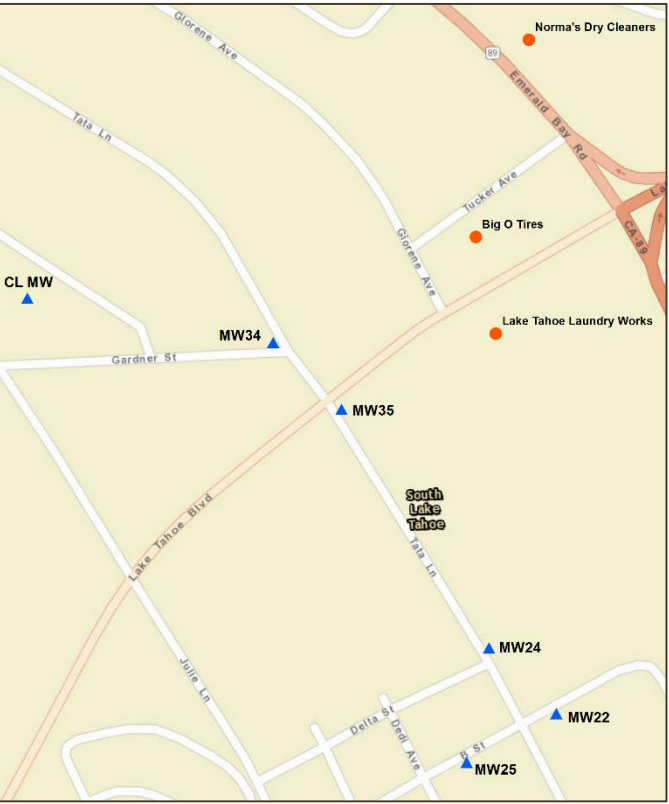
Legend

● Wells

□ PCE Model Boundary





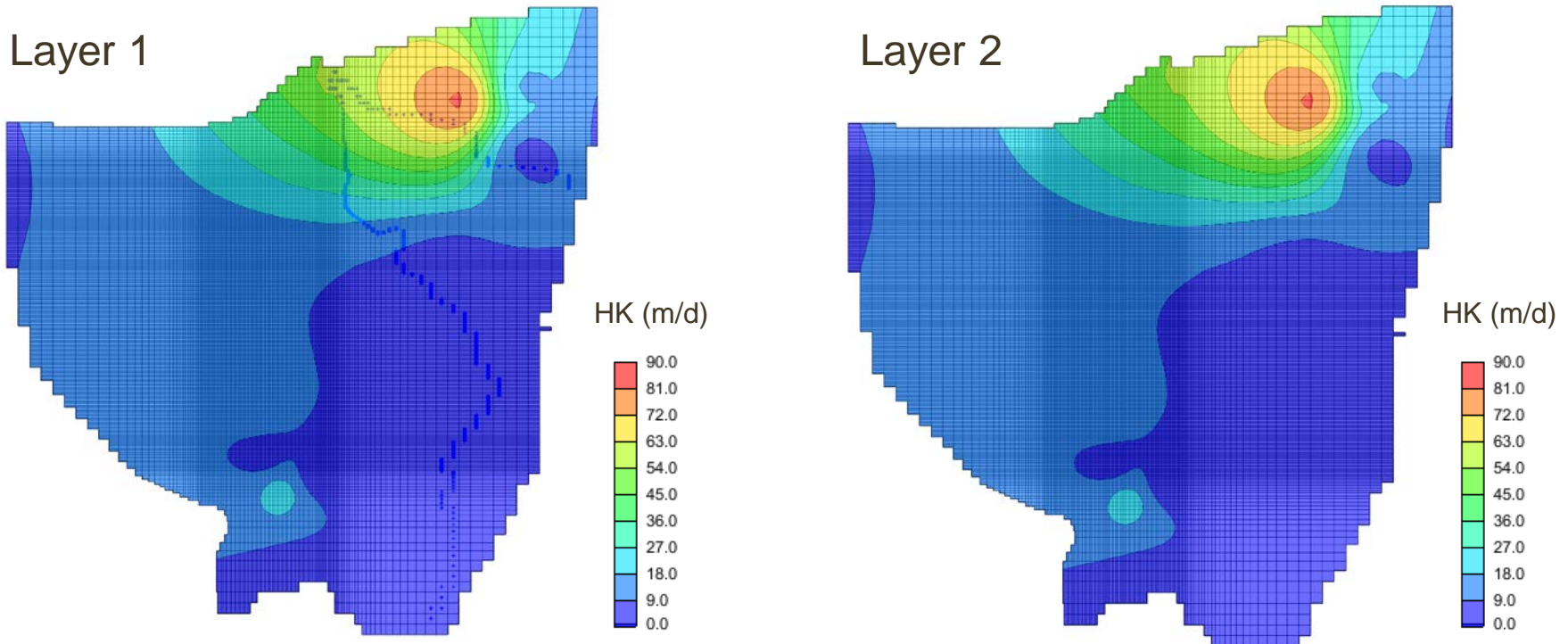


Vertical Gradients

- Nested piezometers are not screened below the depth of the first modeled layer.
- A steep vertical gradient (10^{-1}) is seen at a few shallow piezometers (20-60 ft).
- Vertical gradients between middle and deep zone wells (60 – 120 ft) are much smaller ($10^{-5} - 10^{-2}$), which is consistent with simulated vertical gradients (10^{-3}) between layers 1 and 2 (> 120 ft).

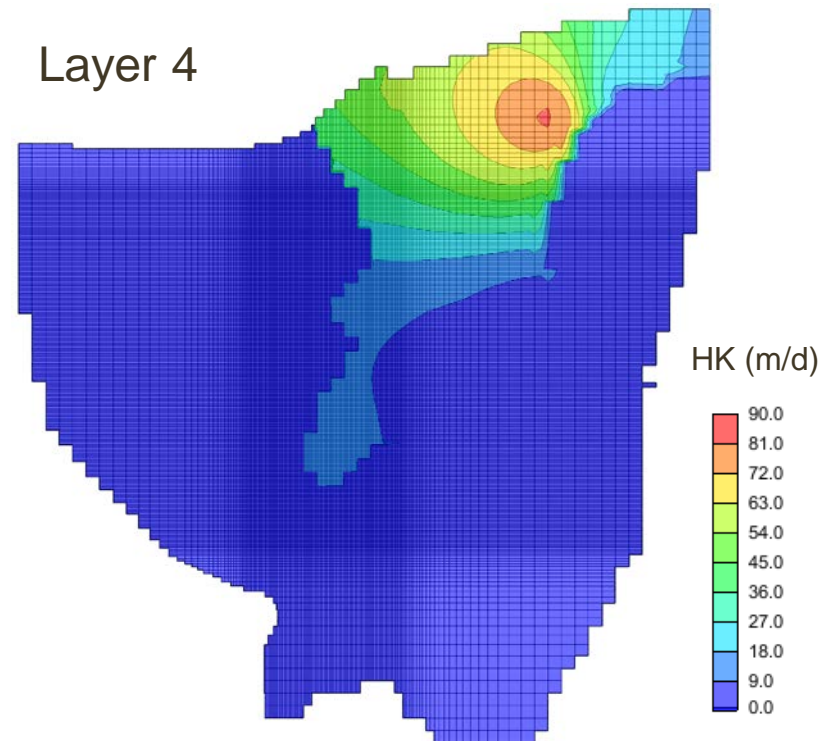
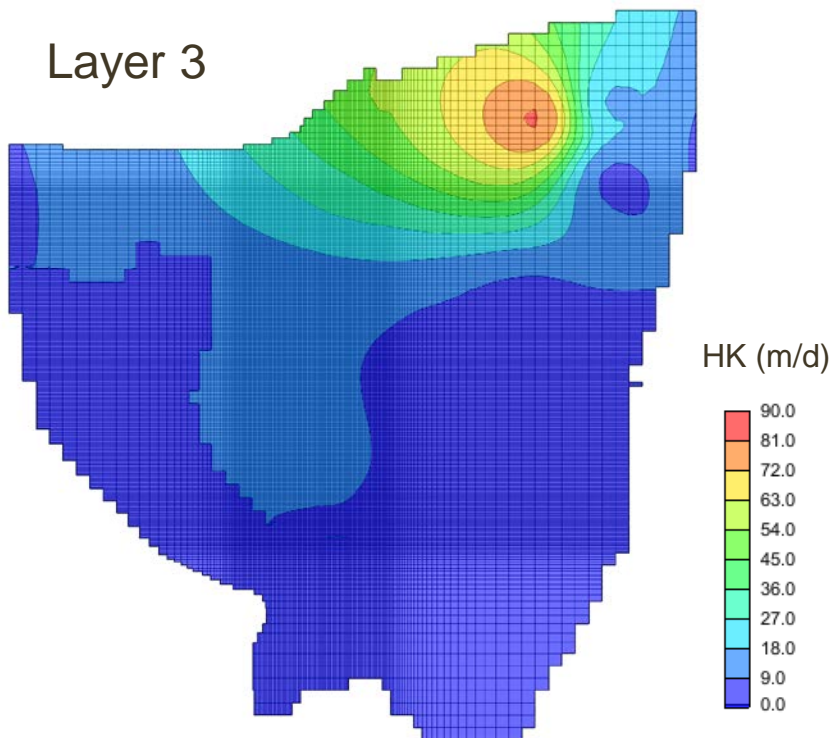
Hydraulic Parameters

- Hydraulic conductivity taken from regional groundwater flow model



Hydraulic Parameters

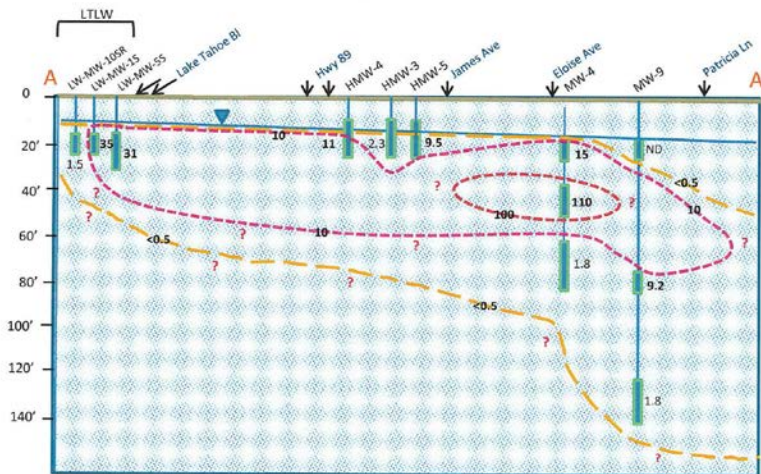
- Hydraulic conductivity taken from regional groundwater flow model



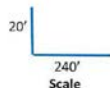
Hydraulic Parameters

- Water levels from shallow, middle, and deep zones indicate a downward gradient near LTLW
- Plume contours show vertical migration does not occur until further downgradient

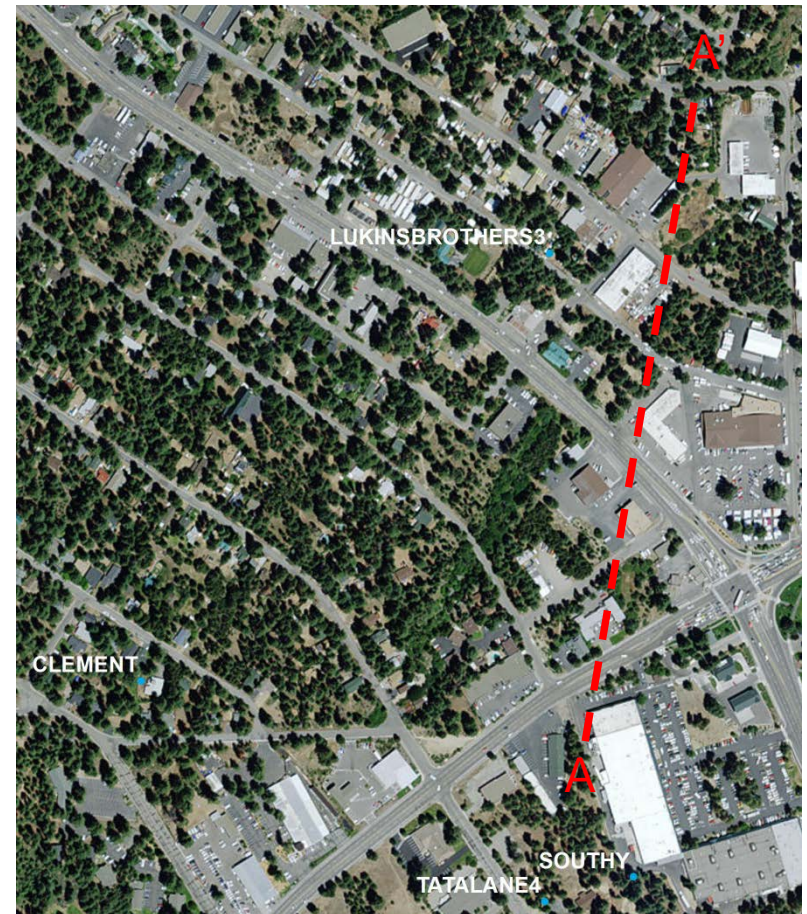
Cross Section of PCE Concentrations* with Depth in the South Y Area Aquifer



*concentrations are in parts per billion, Fall 2016 data

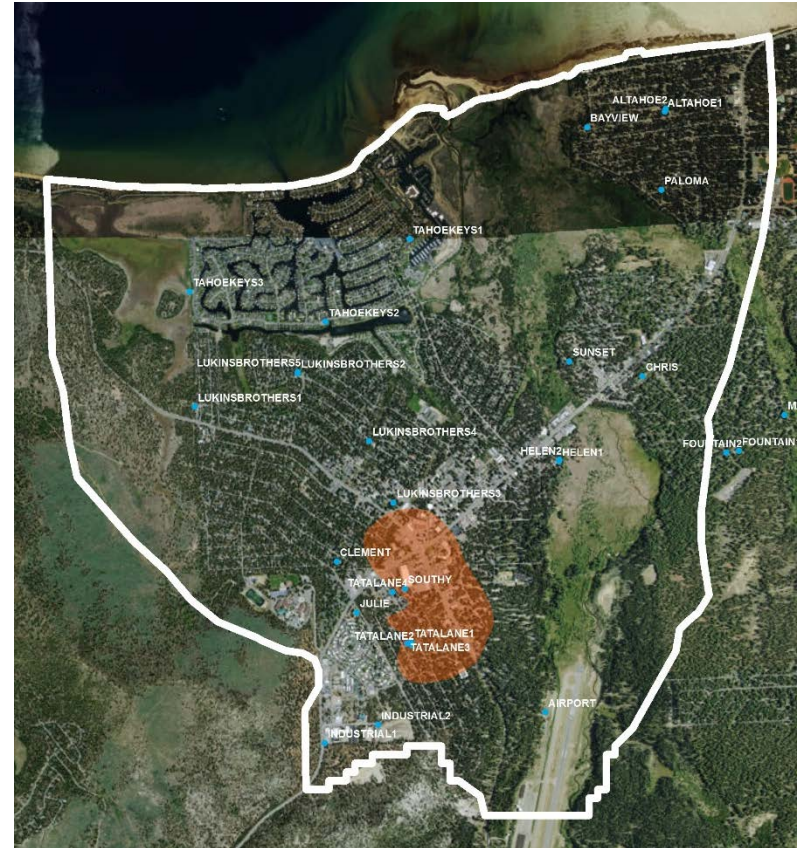


From Lahontan Regional Water Quality Control Board, 2016



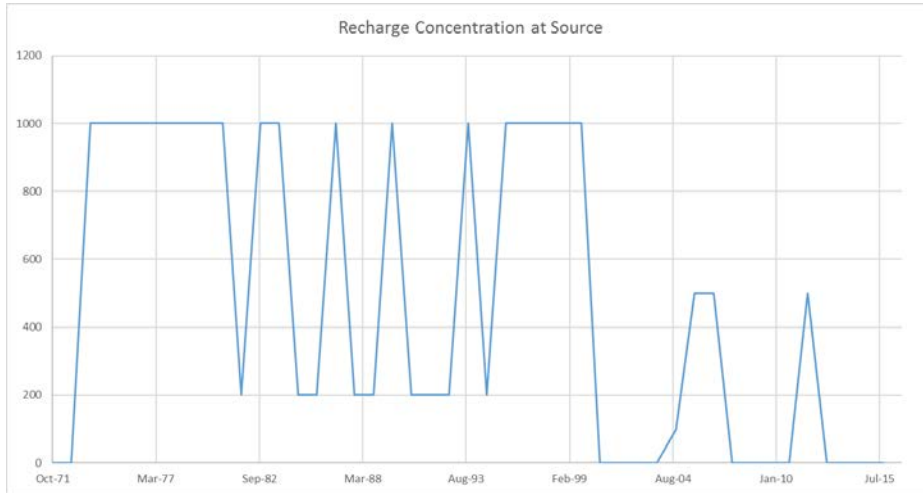
Hydraulic Parameters

- Low K clay lens approximately interpolated from USA Gas cross-sections
- Simulated as zone of low vertical conductivity between layers 1 and 2

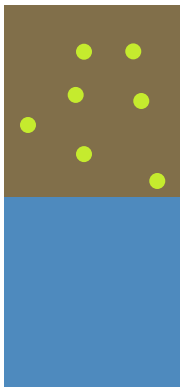


Extent of simulated clay lens shown in red

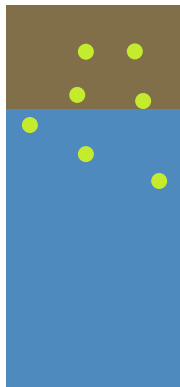
PCE Sources



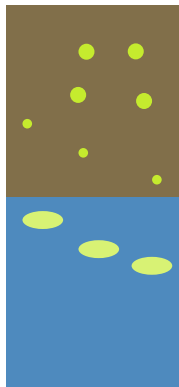
PCE trapped in vadose zone pore space



Water level rises, reaching PCE



PCE is mobilized in groundwater



Transport Parameters

□ Sorption

- $K_{oc} = 152 \text{ cm}^3/\text{g}$ (GAMA, 2009)

- $f_{oc} = 1e-5$ (very low)

- $R_d = 1.04$

- “The retardation coefficient is a direct function of the assumed soil organic carbon content. The granitic sand and gravel layers at the site are likely to be nearly devoid of organic carbon...” (Benson, 2001)

Transport Parameters

- Decay
 - ▣ PCE degradation half-life in groundwater is believed to be 1-2 years (GAMA, 2009) but may be significantly longer in oxic conditions.
 - ▣ Modeled half-life
 - Layer 1 = 15 years
 - Layers 2-4 = 2 years

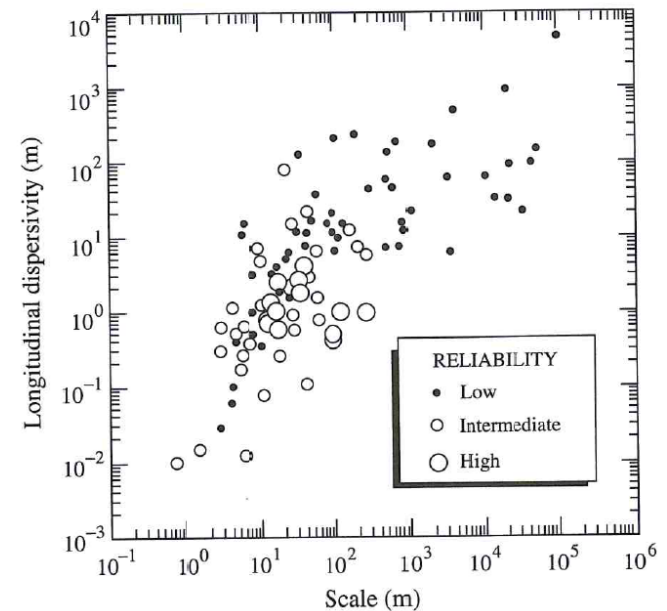


Concentration of dissolved oxygen, 12/2016

Transport Parameters

- Dispersivity
 - ▣ Longitudinal dispersivity
 - 50m for all layers
 - ▣ Transverse dispersivity
 - Layers 1-2 = 0.5
 - Layers 3-4 = 0.2
 - ▣ Vertical dispersivity
 - 0.0001 for all layers

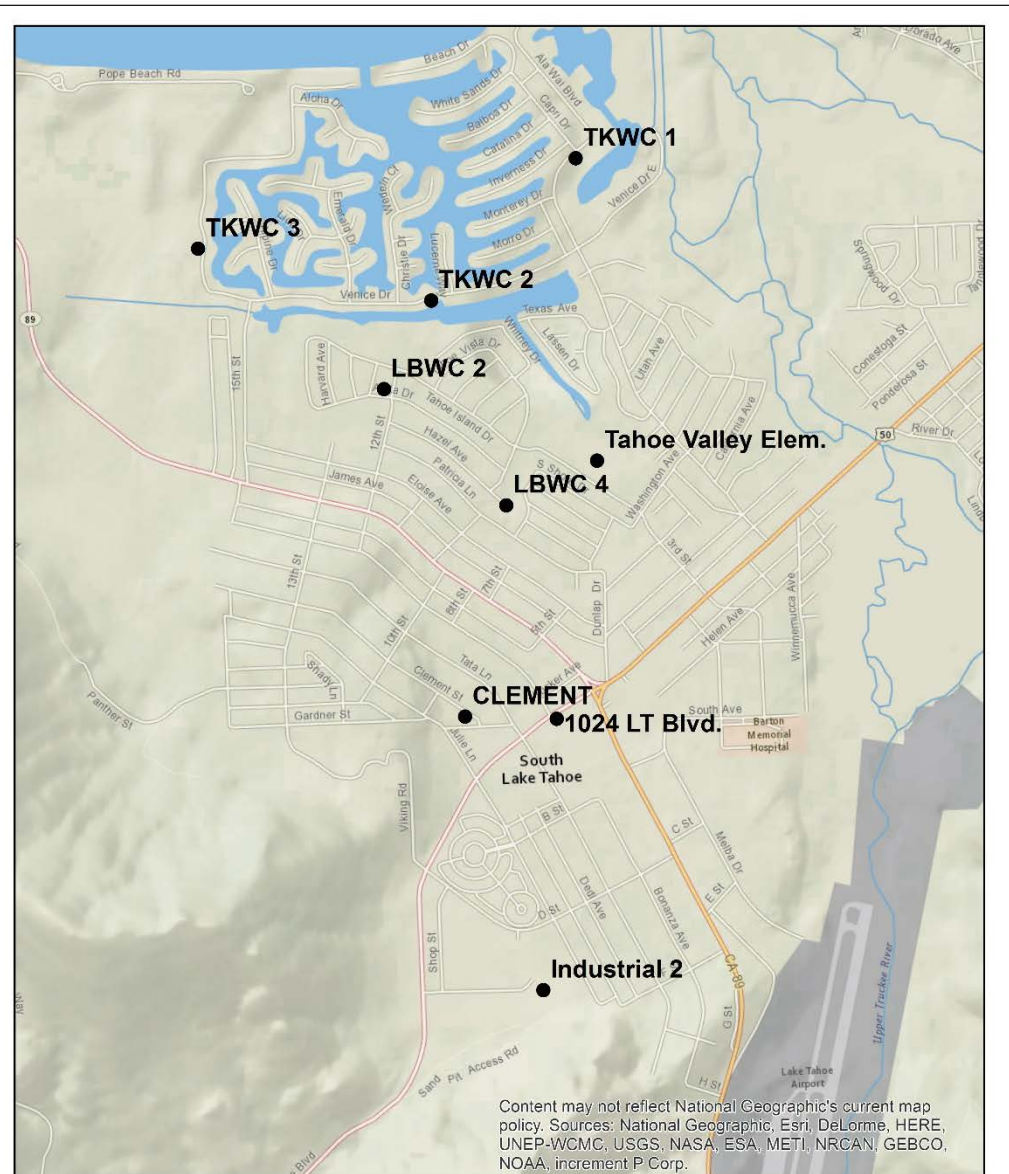
- Effective Porosity
 - ▣ Layer 1 = 10%
 - ▣ Layers 2-4 = 8%



from Zheng and Bennett, 2002



Observed vs. Simulated PCE Concentrations



Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

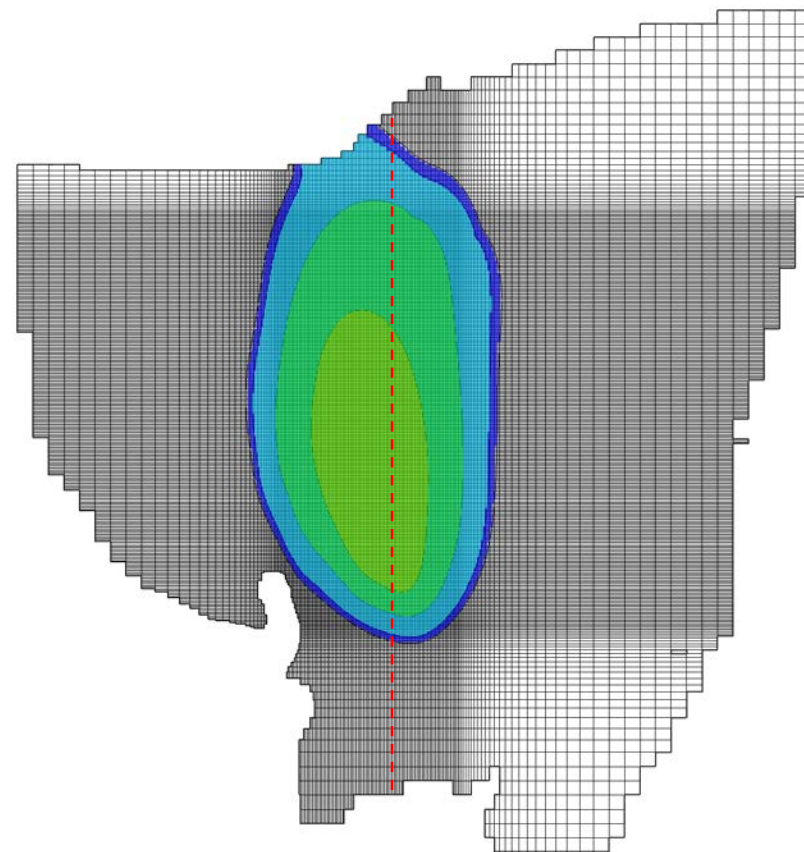


Legend

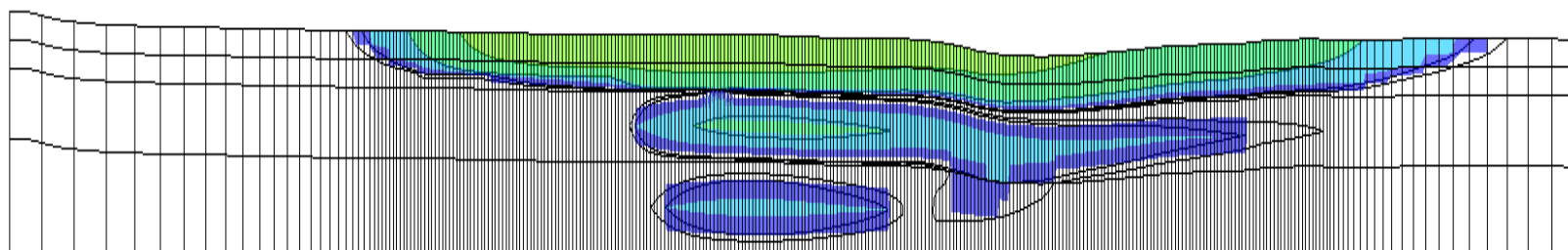
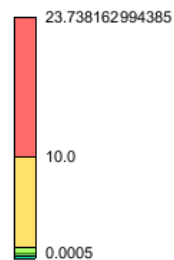
- PCE Monitoring Wells



Cross-sectional view of final stress period (2016)



pce : 10/1/2016 12:00:00 AM



2x V.E.



Simulated Scenarios

F&T MODEL ELEMENTS	SCENARIO														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
SOURCE AREA													TBD	TBD	TBD
Single Source, No Action	X		X	X	X	X							TBD	TBD	TBD
Multiple Source, No Action		X											TBD	TBD	TBD
Single Source, Clean-Up (CAO R6T-2016 PROP)							X	X	X	X			TBD	TBD	TBD
Multiple Source, Clean-Up											X		TBD	TBD	TBD
Biodegradation analysis												X	TBD	TBD	TBD
													TBD	TBD	TBD
EXTRACTION WELLS													TBD	TBD	TBD
Shallow well near LBWC #4			X	X									TBD	TBD	TBD
883/903 Eloise Ave well			X	X									TBD	TBD	TBD
Rockwater well			X	X									TBD	TBD	TBD
Optimal Well Configuration (TBD by Modeling Analysis)					X	X	X	X	X	X	X	X	X	X	X
													TBD	TBD	TBD
GROUNDWATER PRODUCTION (GPM)													TBD	TBD	TBD
Clement Well (180)			X	X	X	X	X	X	X	X	X	X	TBD	TBD	TBD
LBWC#1 (720)	X	X	X	X	X	X	X	X	X	X	X	X	TBD	TBD	TBD
LBWC #4 (200) - Replacement Well									X				TBD	TBD	TBD
LBWC #4 (400)- Replacement Well										X			TBD	TBD	TBD
LBWC #4 (800)- Replacement Well											X	X	TBD	TBD	TBD
LBWC #5 (720) - Treatment								X	X	X	X	X	TBD	TBD	TBD
TKWC #1 (1,000)	X	X	X	X	X	X	X						TBD	TBD	TBD
TKWC #1 (550)								X	X	X	X	X	TBD	TBD	TBD
TKWC #2 (550)	X	X	X	X	X	X	X						TBD	TBD	TBD
TKWC #2 (1,800) - Treatment								X	X	X	X	X	TBD	TBD	TBD
TKWC #3(1,750)	X	X	X	X	X	X	X	X	X	X	X	X	TBD	TBD	TBD
DISCHARGE													TBD	TBD	TBD
Sewer Discharge (200 GPM Limited)			X		X						X		TBD	TBD	TBD
Treated Water System Reuse								X	X	X	X	X	TBD	TBD	TBD
Injection				X		X						X	TBD	TBD	TBD

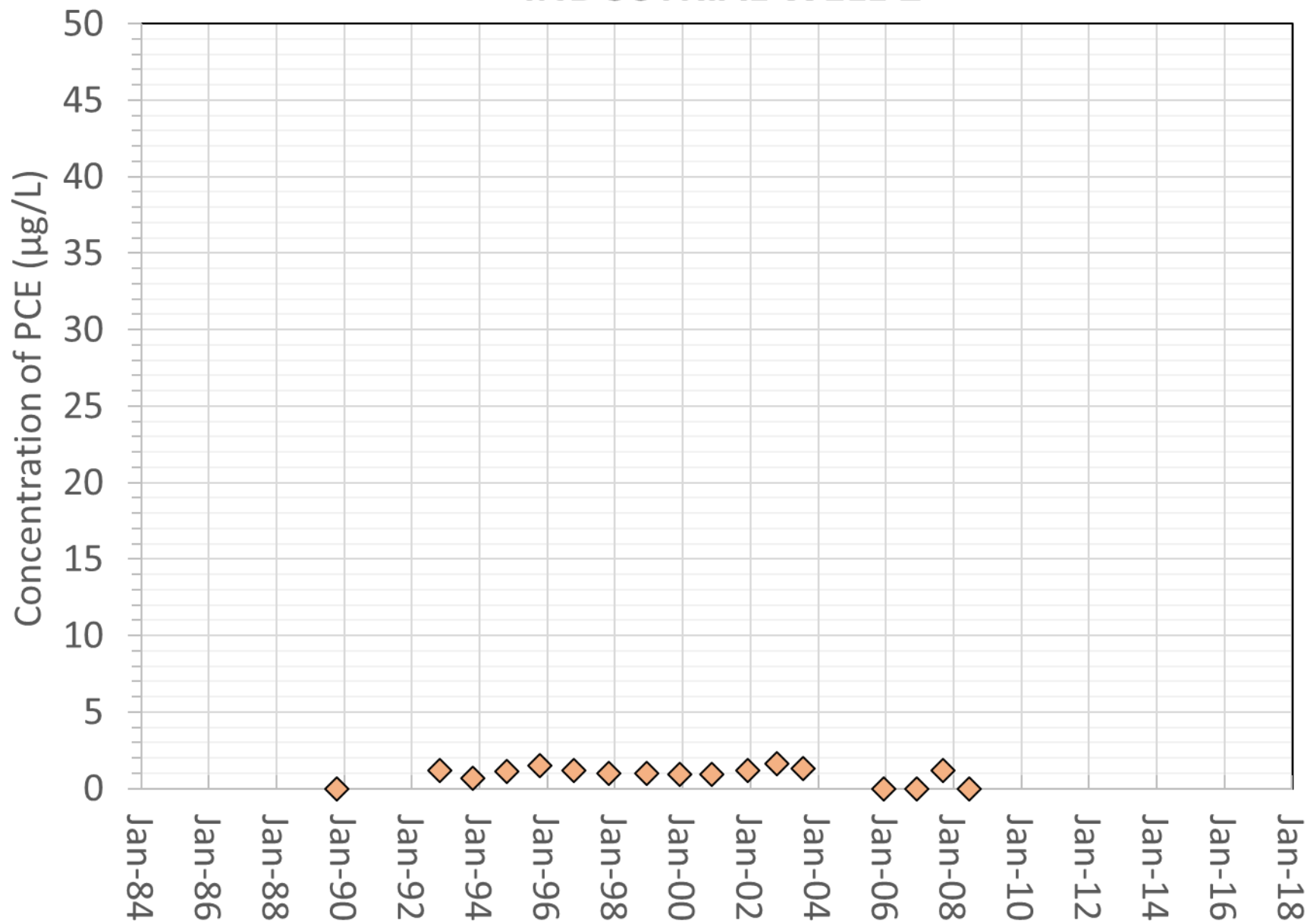
Next Steps

- Model Feedback – April 14th
- Scenario Feedback – April 14th
- Model Finalization and Scenarios Complete – May 31st

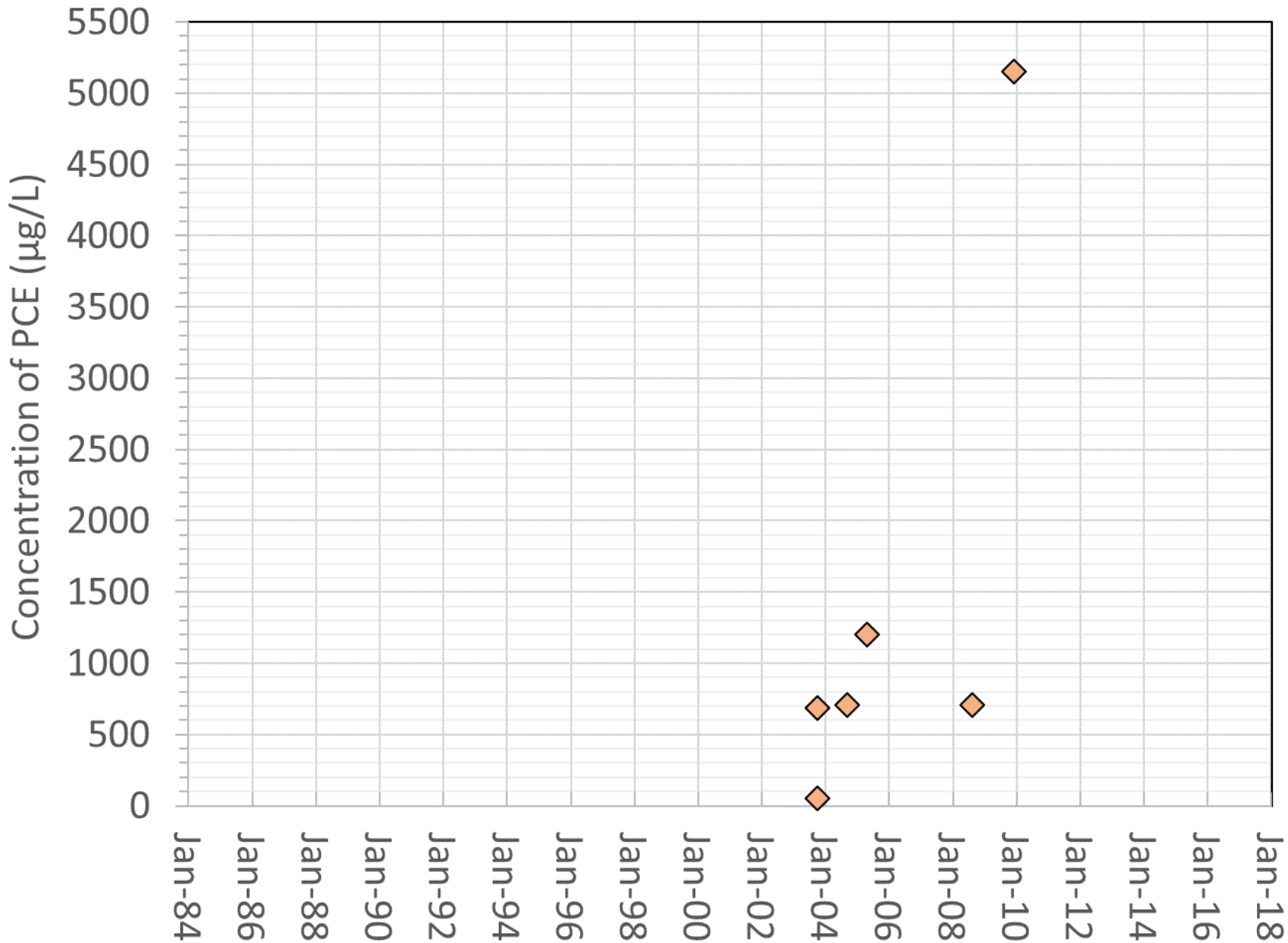
Questions?



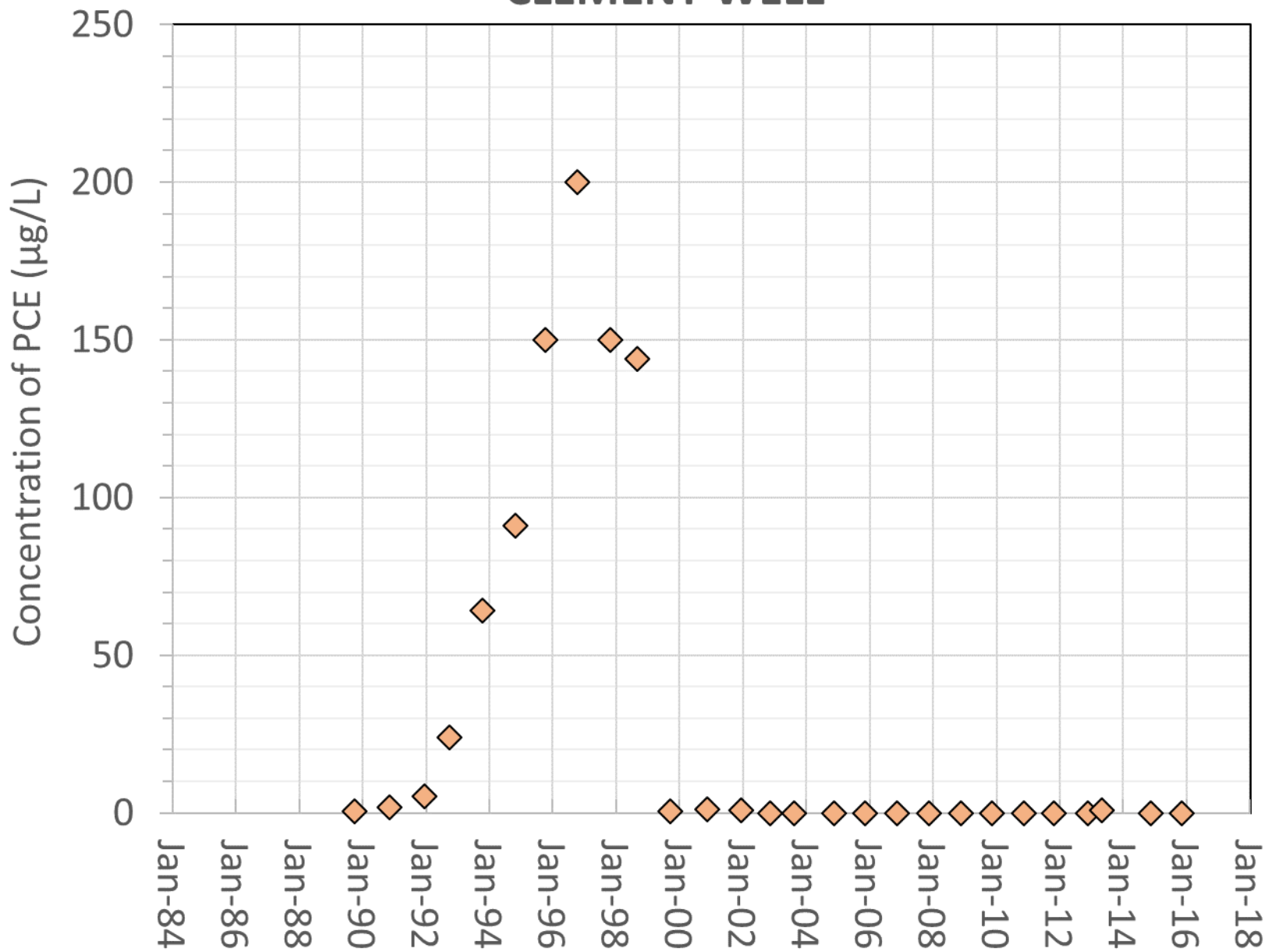
INDUSTRIAL WELL 2



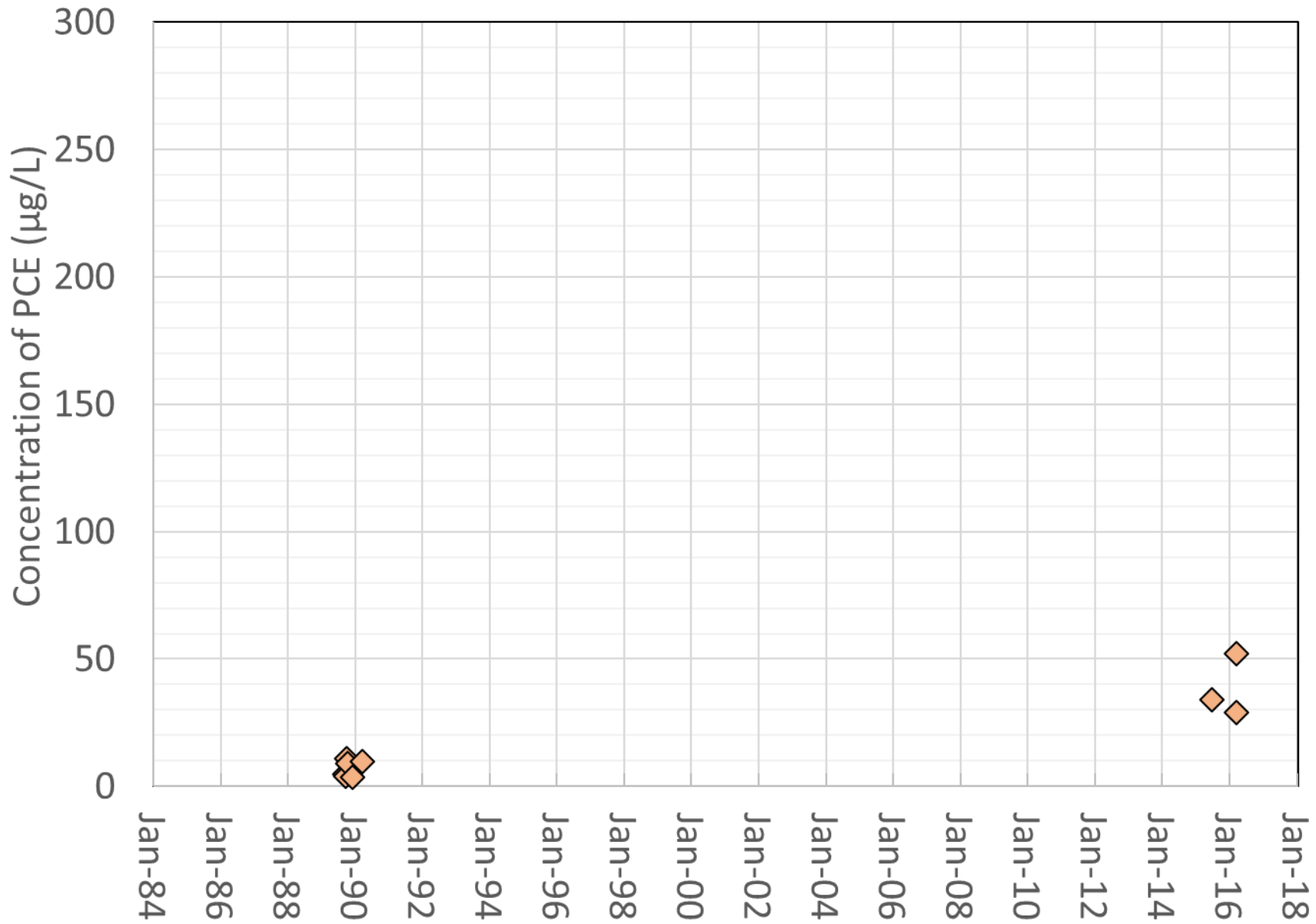
1024 LAKE TAHOE BOULEVARD*



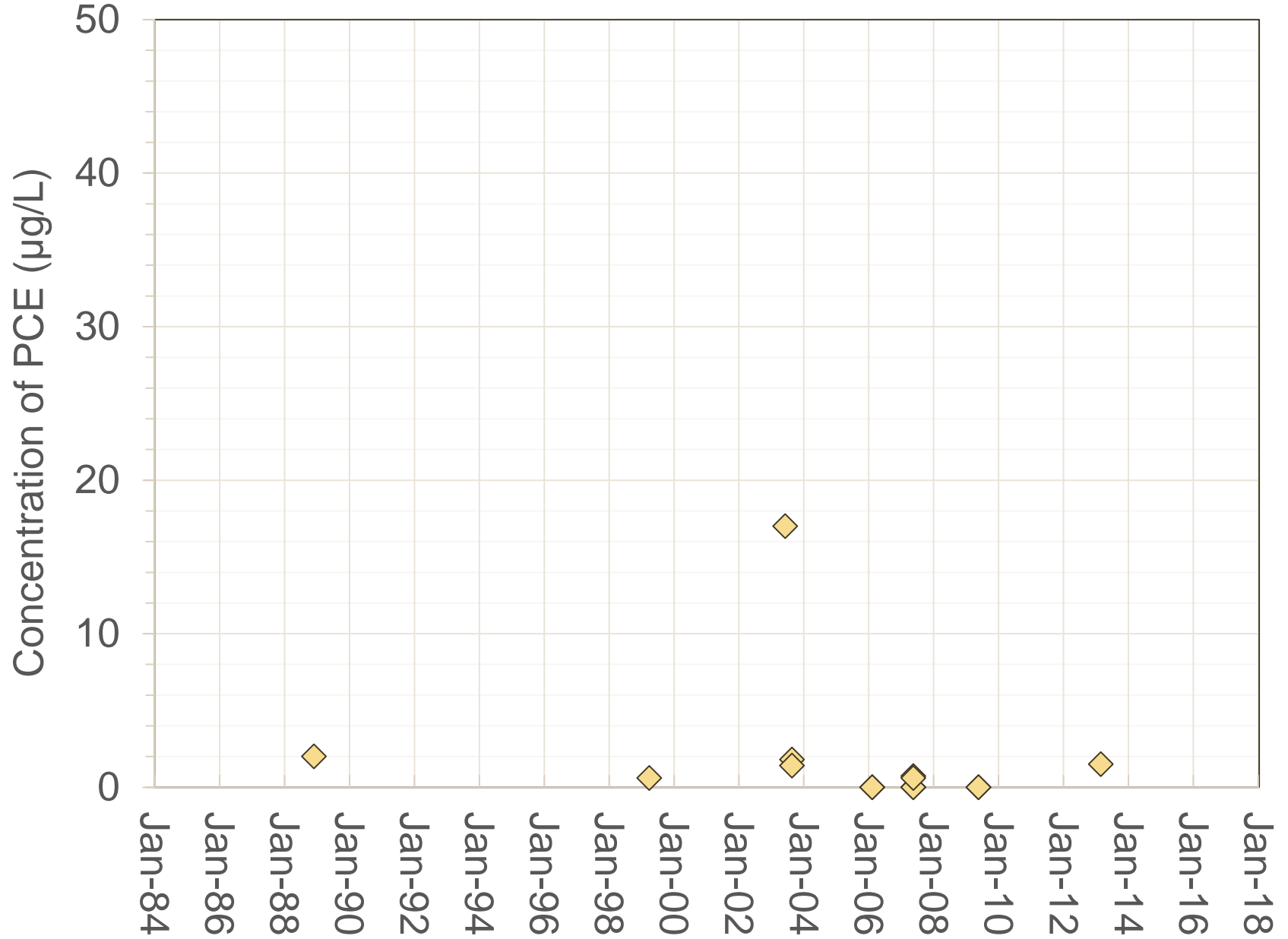
CLEMENT WELL



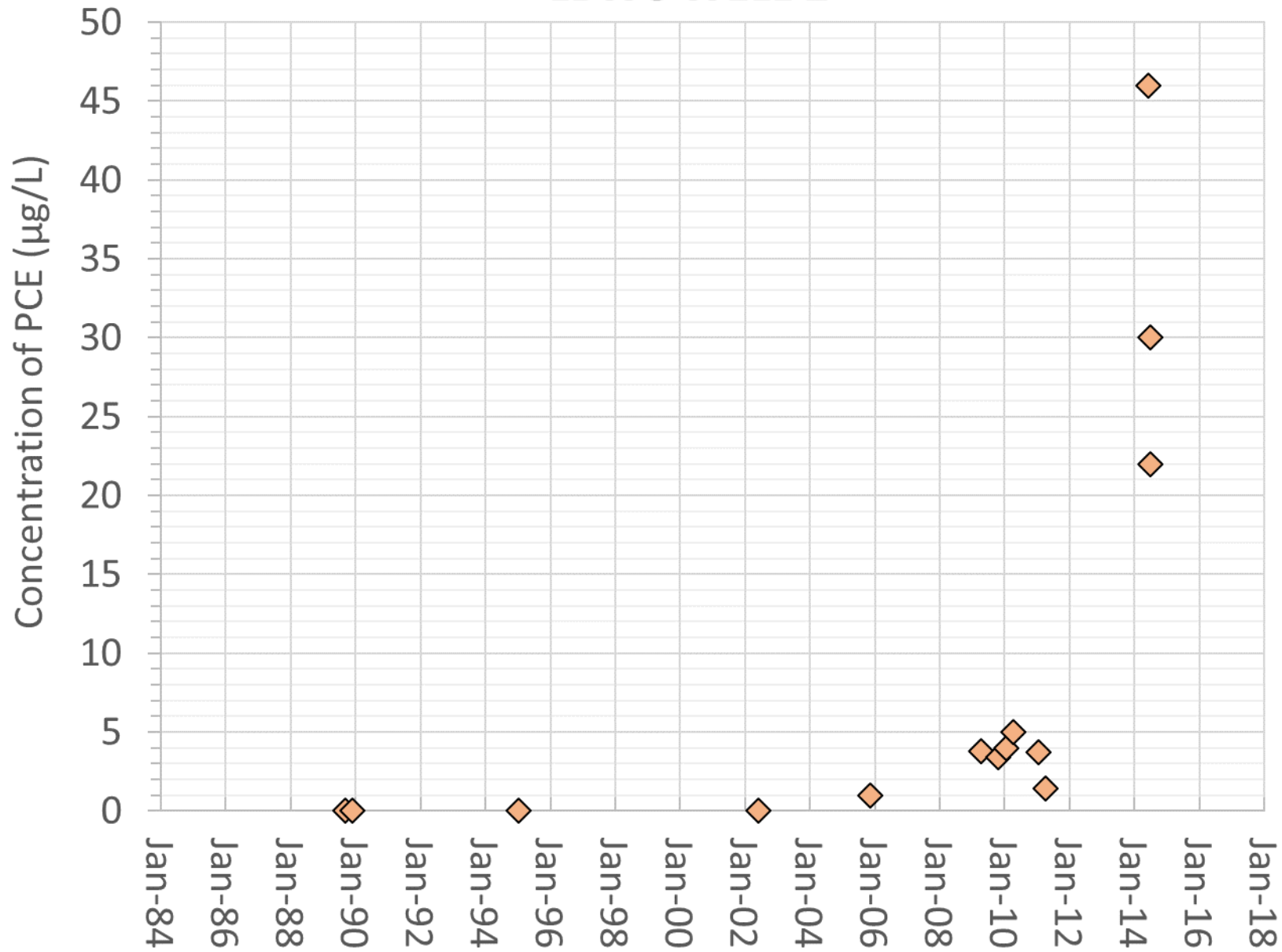
LBWC WELL 4*



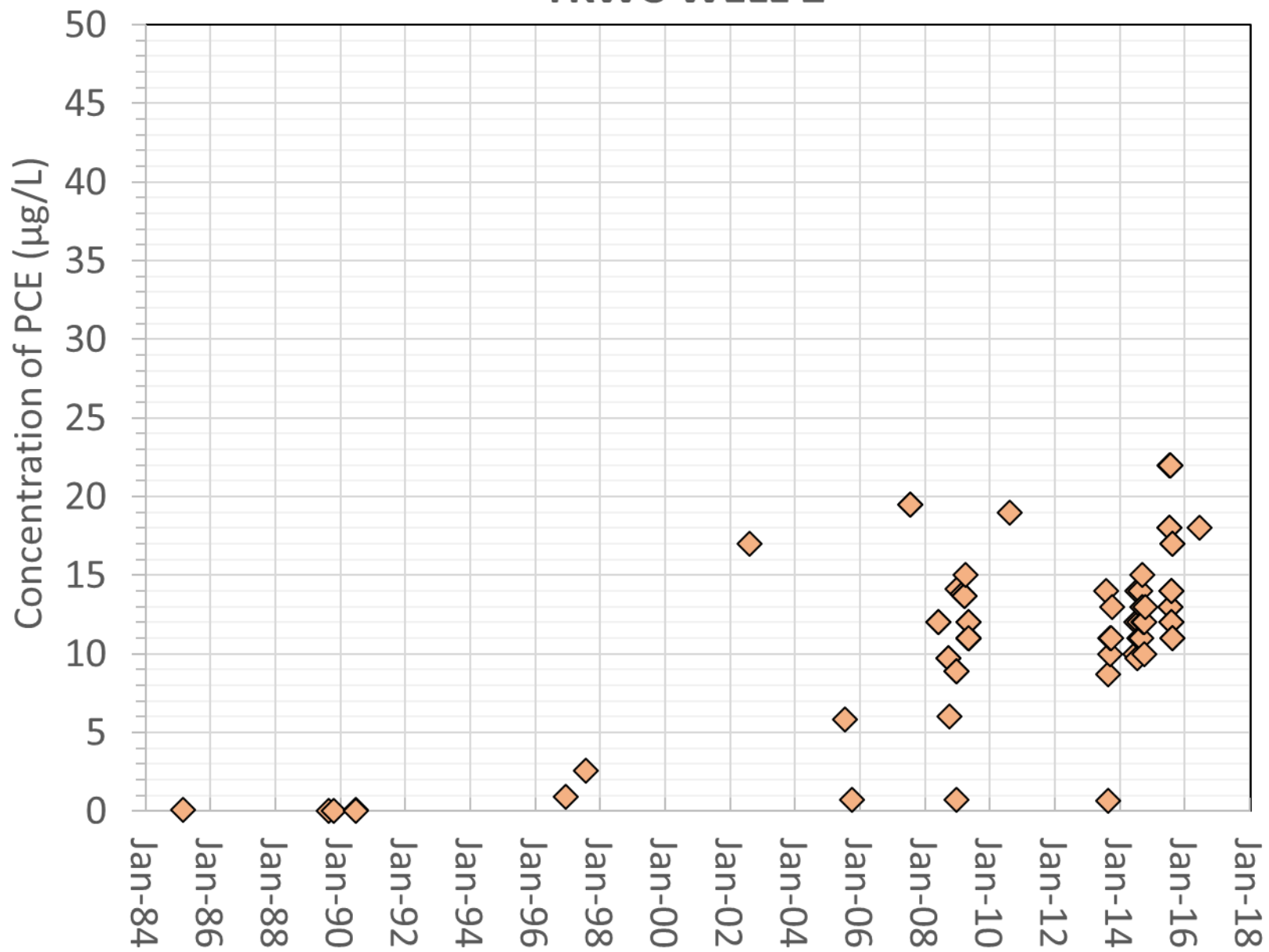
TAHOE VALLEY ELEMENTARY SCHOOL



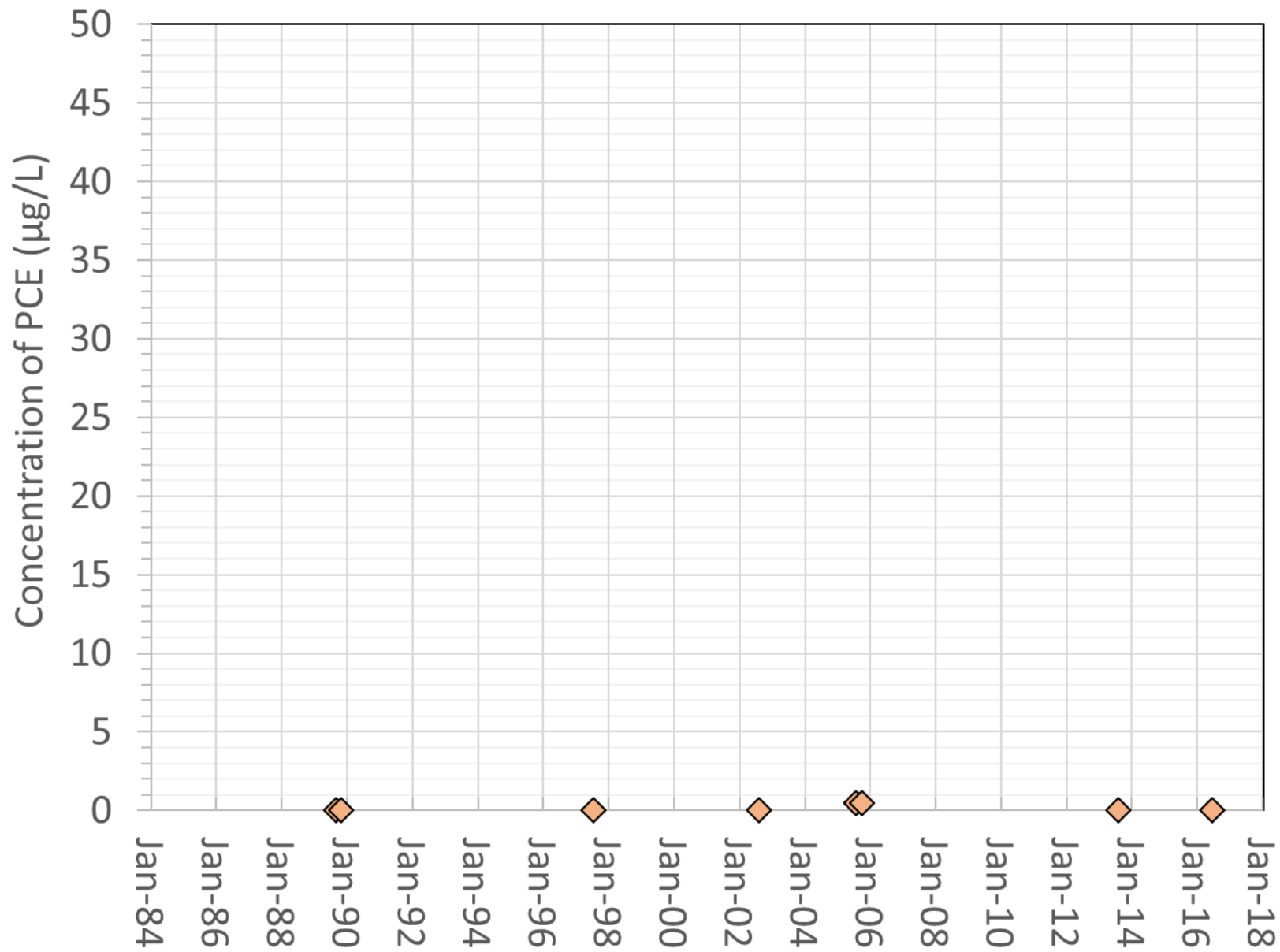
LBWC WELL 2*



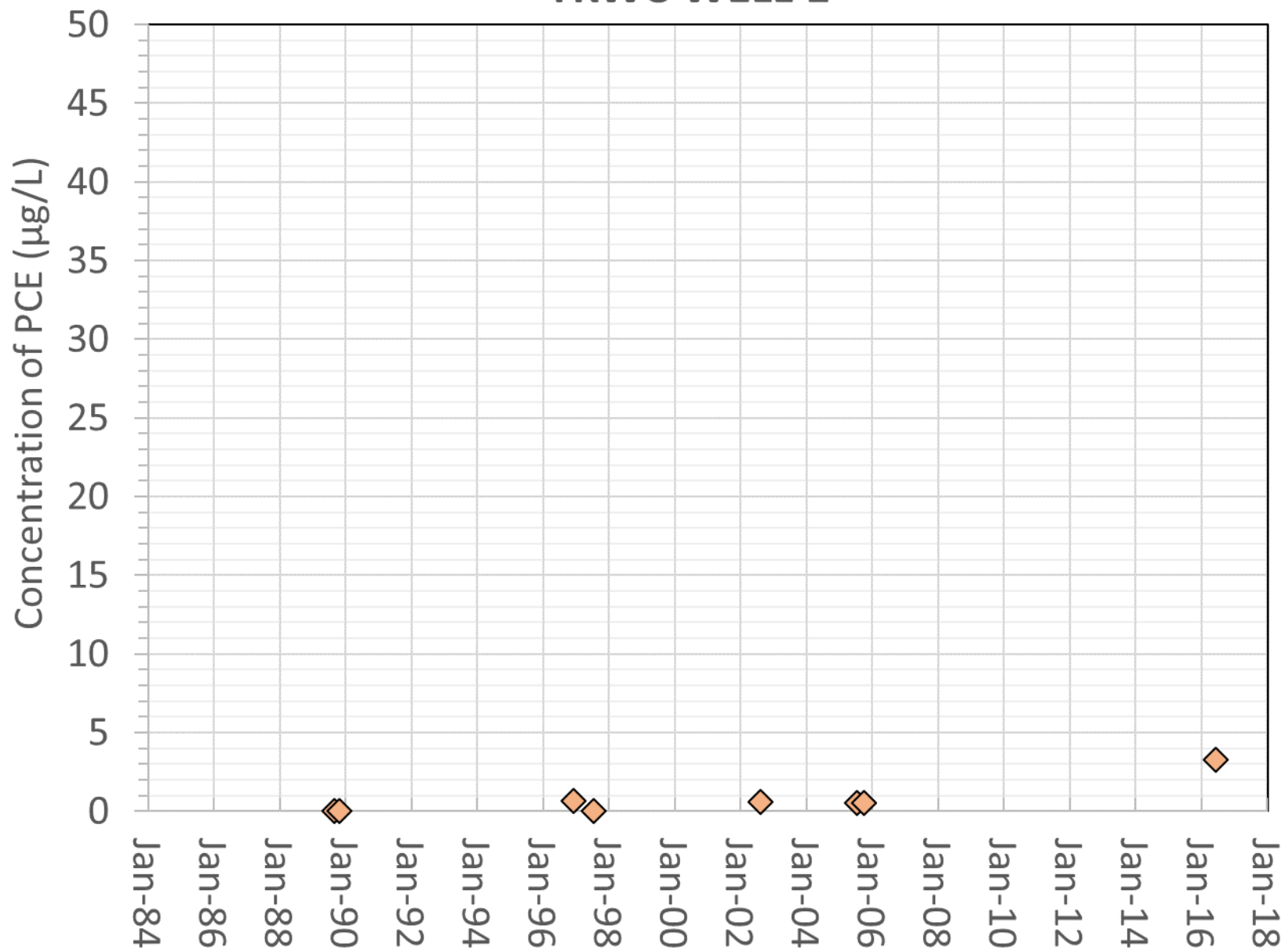
TKWC WELL 2*



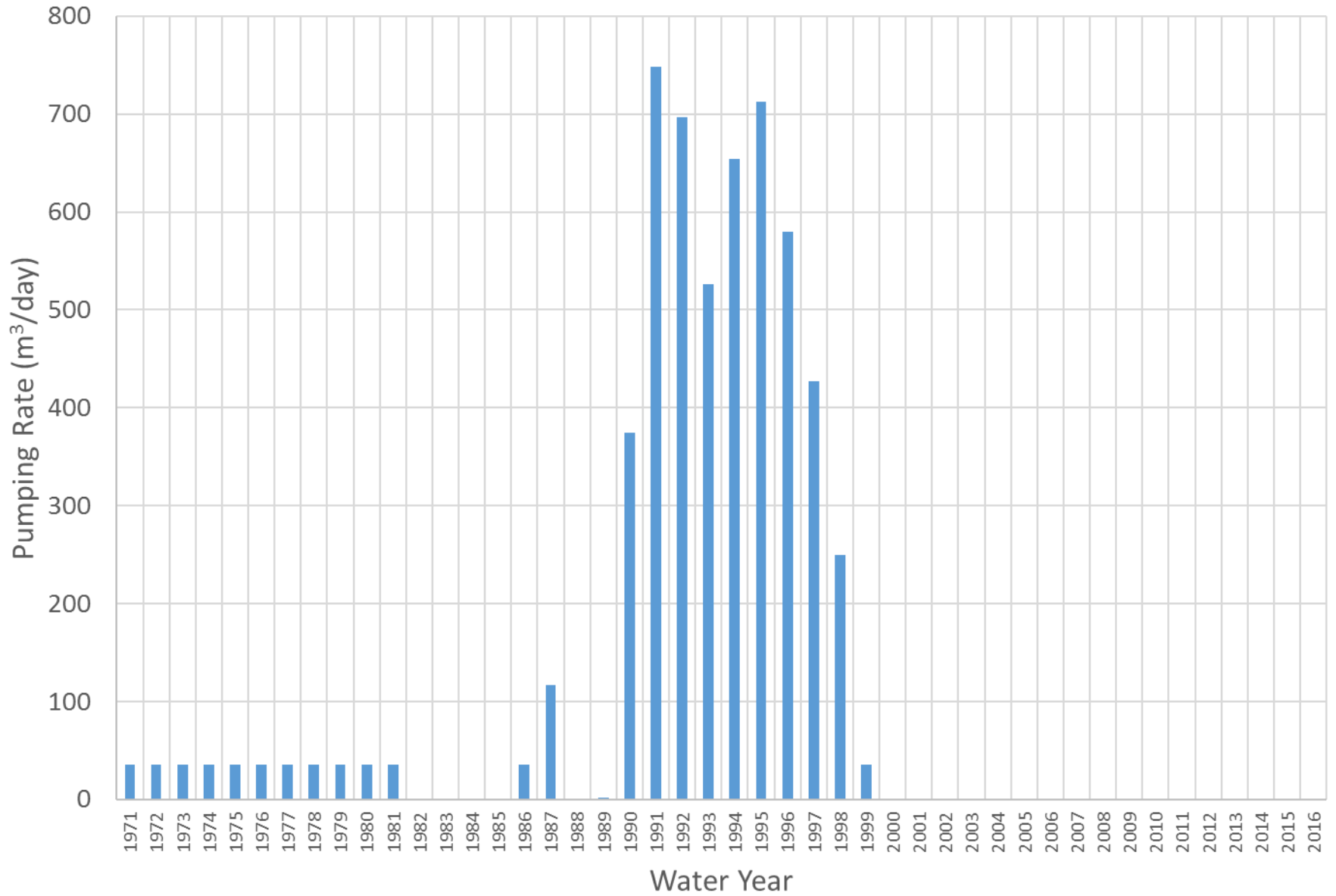
TKWC WELL 3



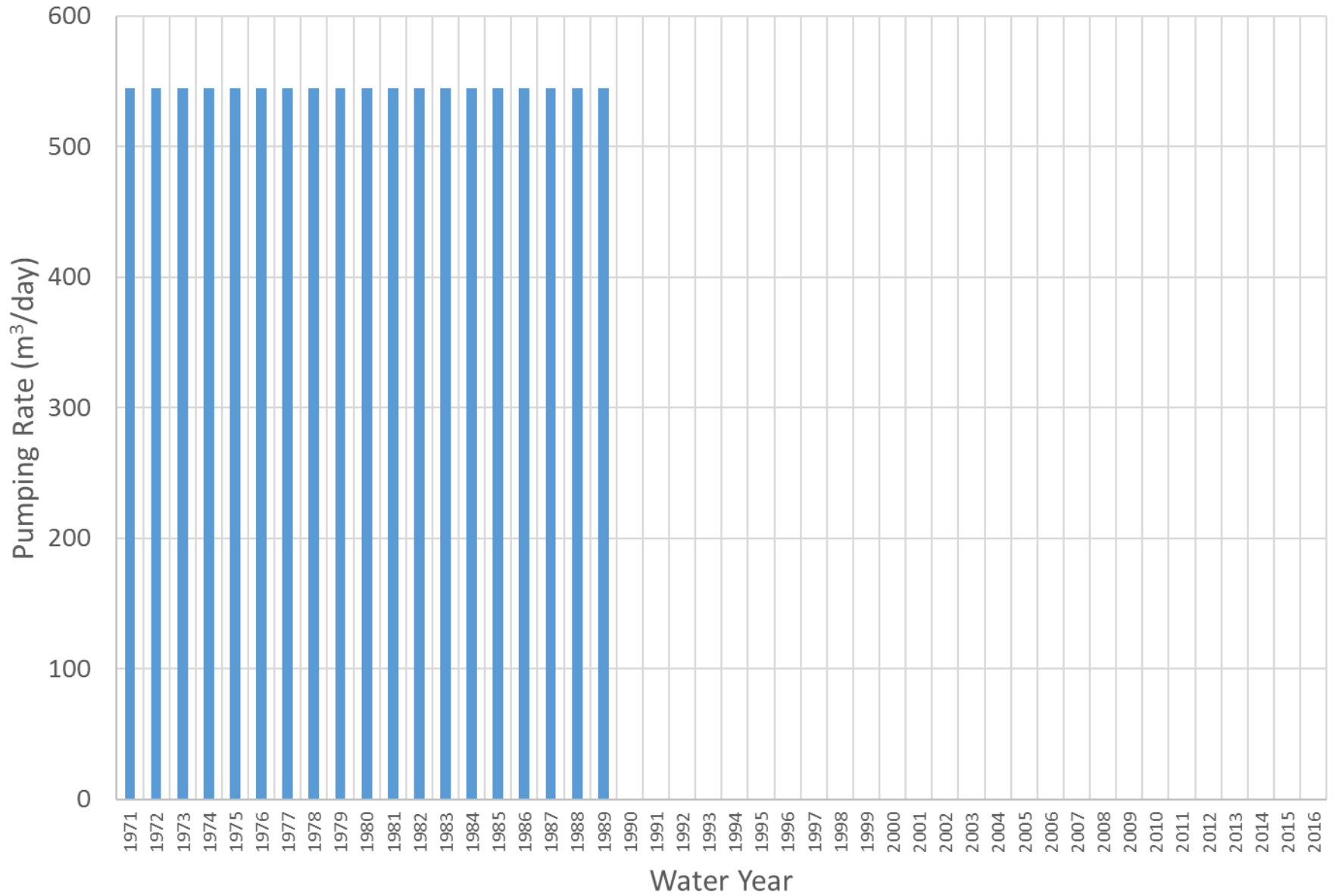
TKWC WELL 1



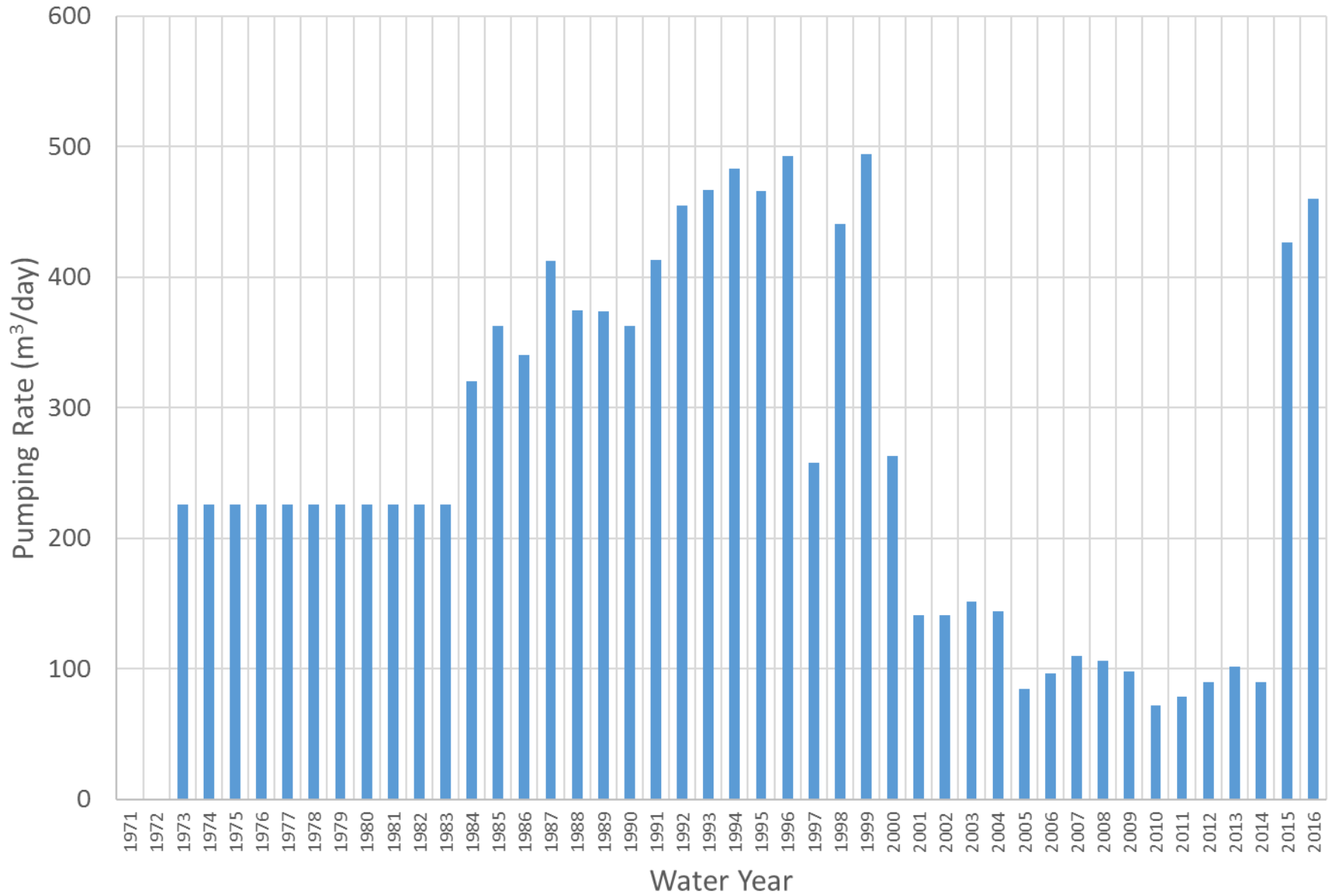
Clement Well



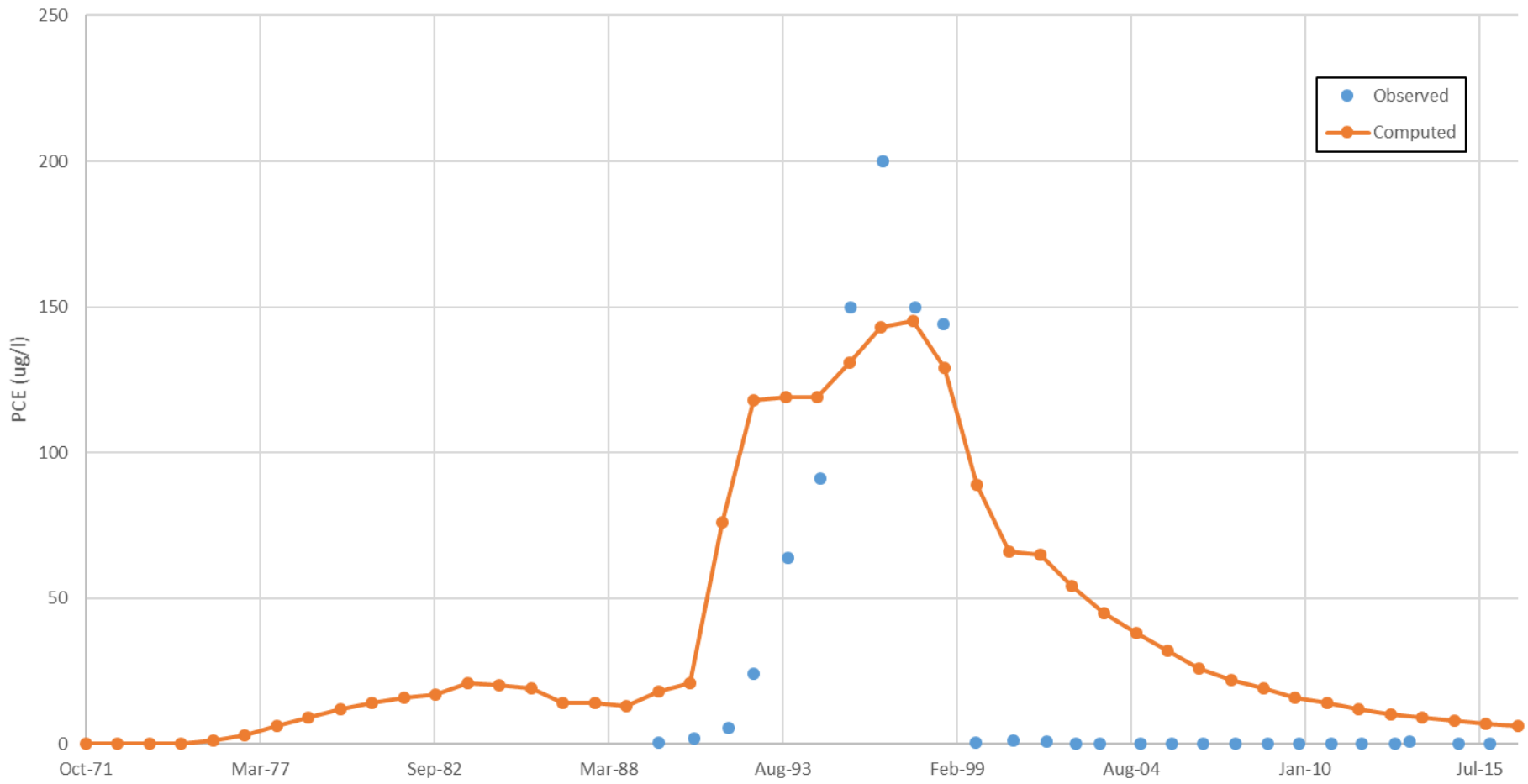
Lukins Brothers 4



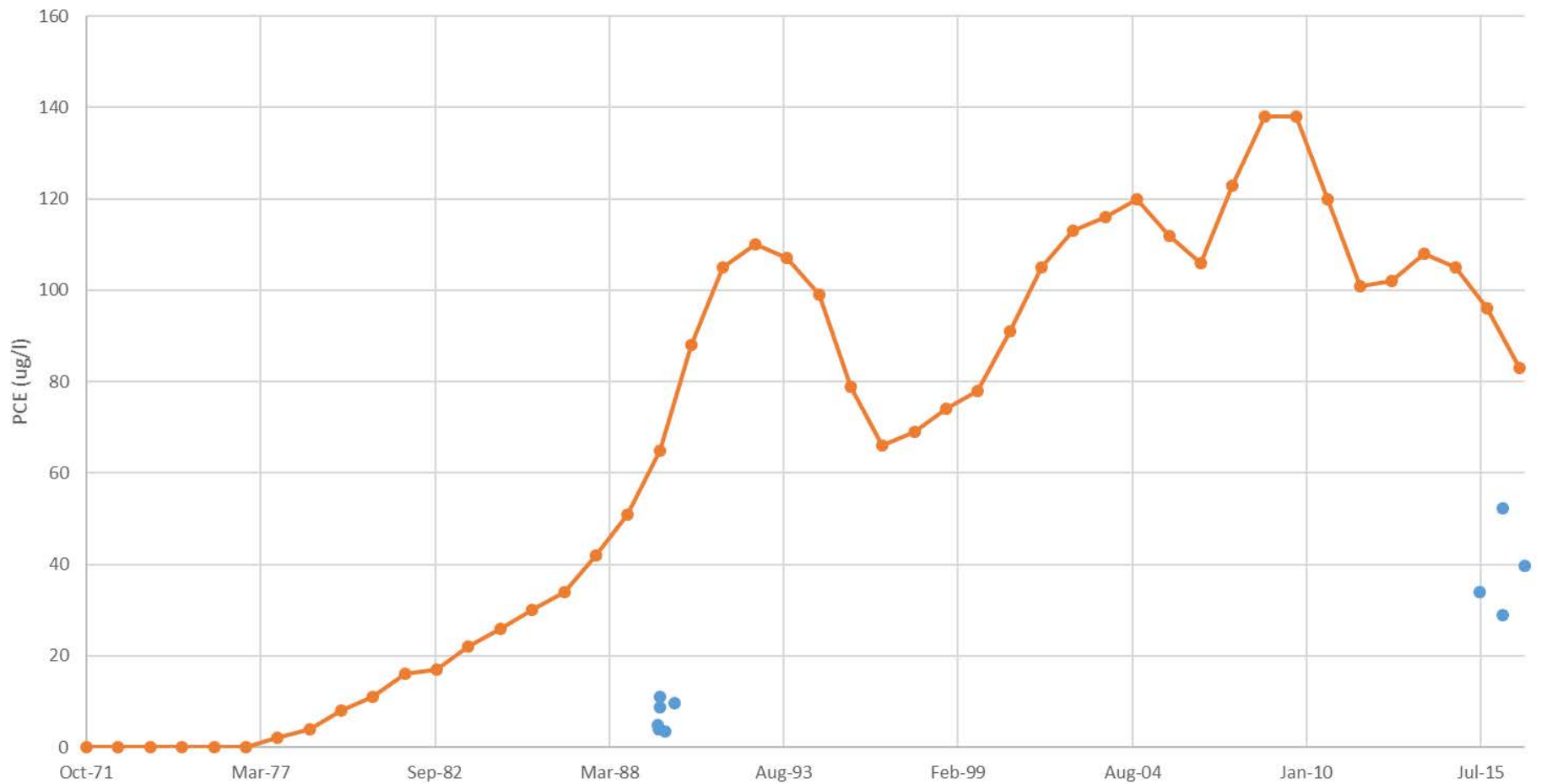
Tahoe Keys 2



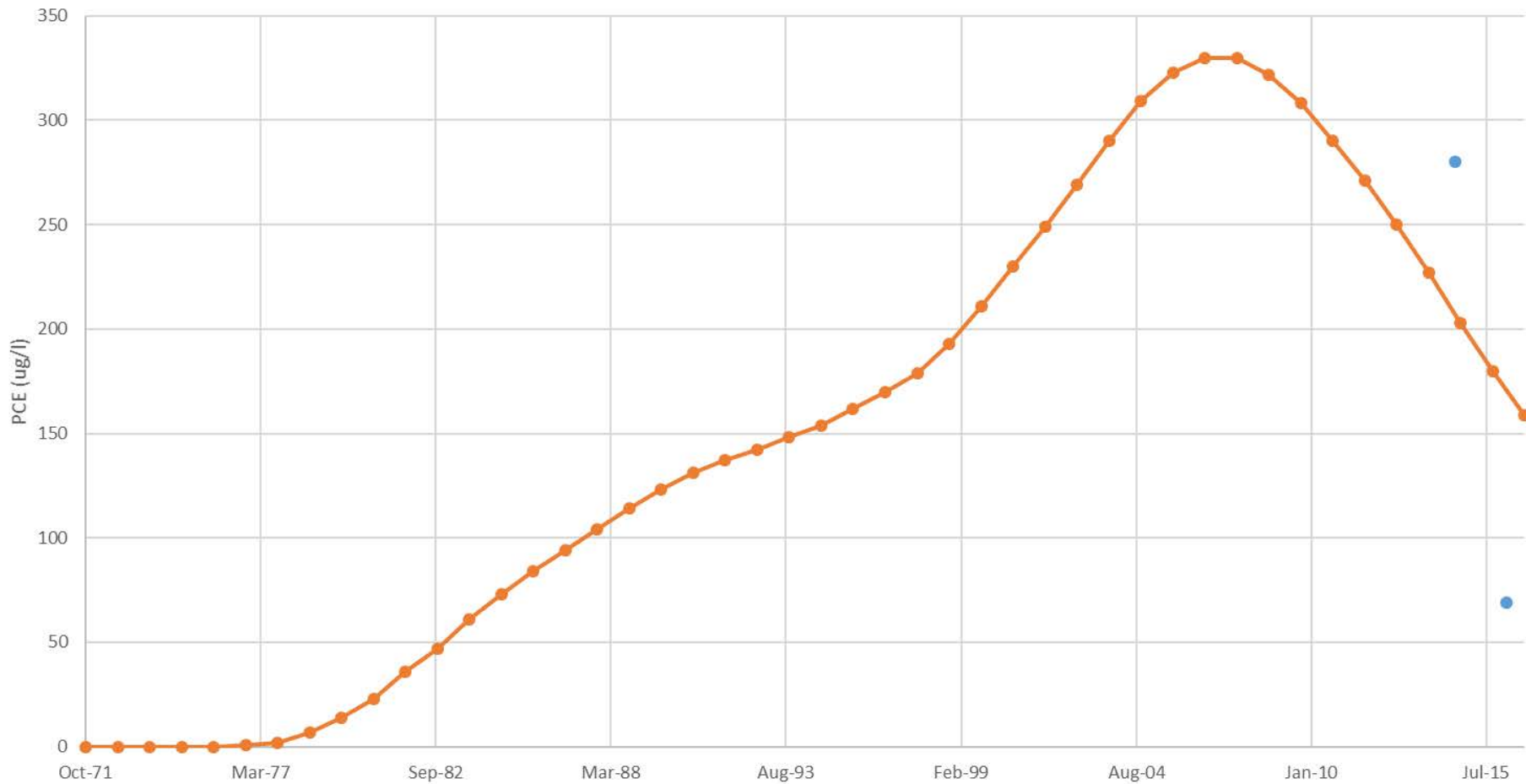
Clement Well



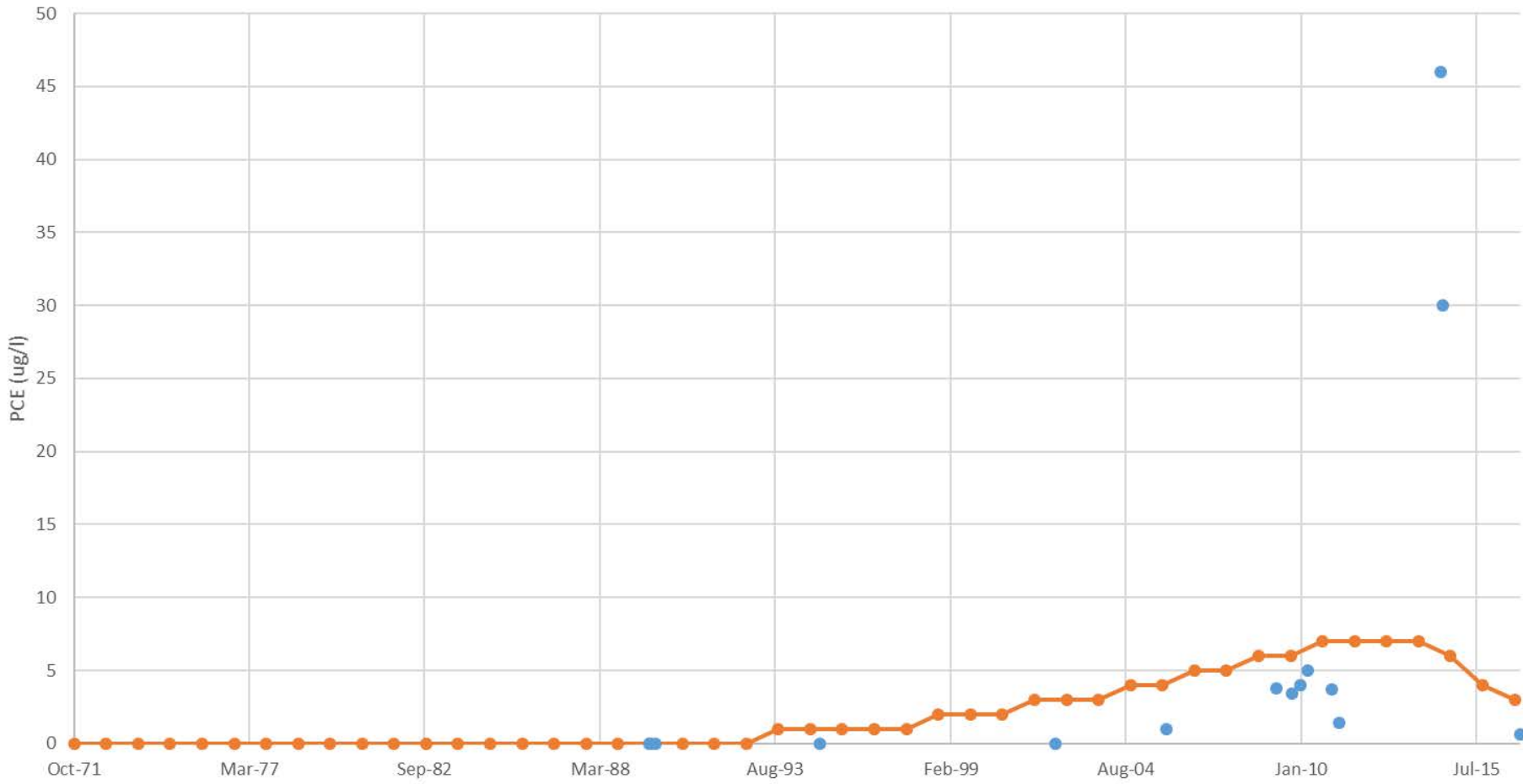
Lukins Brothers Well 4



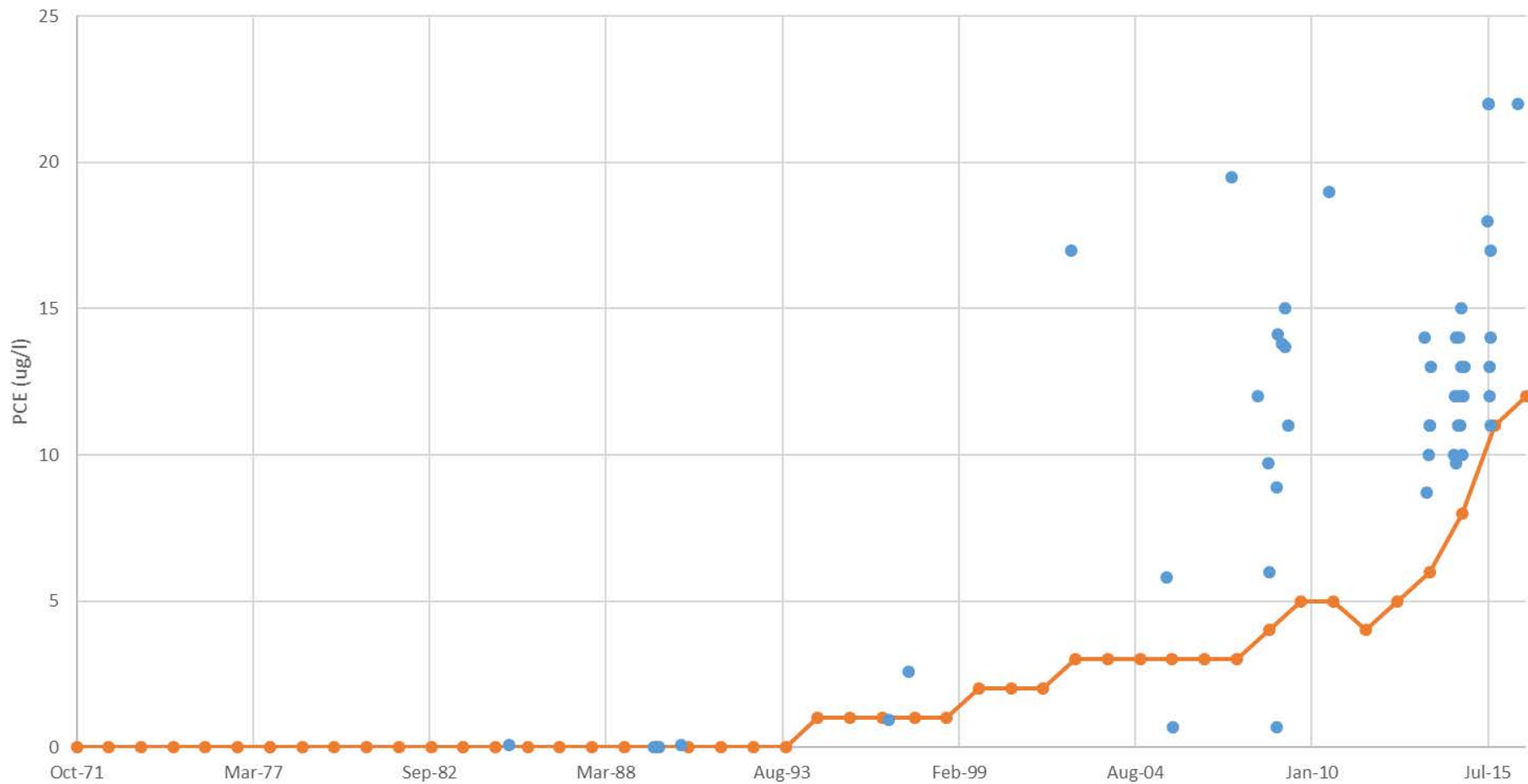
Rockwater Well



Lukins Brothers Well 2



Tahoe Keys Well 2



Task A. Stakeholder Outreach (3 Public Workshops; 3 Public Hearings)

Task B. Permitting

B.1 Regulatory Guidance, Order or Permits

B.2 Regulatory Directive

B.3 Required Permits, Environmental Documentation. Landowner/Access Agreements

B.3.1 Status (if Optional MW)

B.3.2 Supporting Documentation (if Optional MW)

Task C. Work Tasks/Deliverables

C. 1 Work Tasks

C. 1.1 Project Administration

C.1.1.1 Grant Administration

C.1.1.2 Project Management & Coordination

C. 1.2 Planning/Design/Engineering/Environmental

C.1.2.1 Supporting Studies & Technical Planning (for Match)

C.1.2.2 Groundwater/Contaminant Transport Modeling (for Match)

C.1.2.2.1 Data Acquisition

C.1.2.2.2 Fate and Transport Model

C.1.2.2.3 Analysis of Pumping and PCE Contaminant Alternatives
(Up to 15 Alternatives)

C.1.2.3 Feasibility Study

C.1.2.3.1 Data Review/Kick-Off Meeting

C.1.2.3.2 Screen Modeled Alternatives (up to 7 Alternatives)

C.1.2.3.3 Define Infrastructure Needs (3 Alternatives)

C.1.2.3.4 Develop Life-Cycle Cost Estimates (3 Alternatives)

C.1.2.3.5 IS Checklist for CEQA (3 Alternatives)

C.1.2.3.6 Select Recommended Alternative (1 Alternative)

C.1.2.3.7 Implementation Plan; Financial and Governance (1
Alternative)

C.1.2.3.8 Draft Report

C.1.2.3.9 Final Report

C.1.2.3.10 FS Project Management & Administration

C.1.2.3.11 As-Directed Services

Dear _____;

County maps indicate there is a groundwater well on this property and we at the South Tahoe Public Utility District are offering support for well users. Our interest is to protect and maintain our shared groundwater for everyone's benefit. The District is now a Groundwater Sustainability Agency, which means we steward our local groundwater resource and are answerable to the State of California to do so. You, as the owner, user or manager of a well, are invited to partner with the District to learn about our local groundwater and your well. The first step is completing this survey.

Welcome to the South Tahoe Groundwater Wells Survey. Thank you for participating. Your answers to the following questions are the portal to shared understanding of your well and its relationship to South Tahoe groundwater.

SURVEY PARTICIPANT CONTACT INFORMATION

Survey Participant Last Name [USER DATA ENTRY]

Survey Participant First Name [USER DATA ENTRY]

Survey Participant e-mail [USER DATA ENTRY]

Survey Participant primary phone [USER DATA ENTRY]

Is this a mobile phone number?

Yes

No

If so, may we contact you at this number?

Yes

No

Survey Participant secondary phone [USER DATA ENTRY]

Yes

No

Is this a mobile phone number?

Yes

No

If so, may we contact you at this number?

Yes

No

Is the following the correct street address for this property?

[PROPERTY NUMBER]

[STREET NAME]

[ZIP CODE]

Yes

No

If the above is incorrect, what is the *correct* street address for this property?

Property number [USER DATA ENTRY]

Street Name [USER DATA ENTRY]

Zip Code [USER DATA ENTRY]

Is the mailing address for this property the same as the street address?

[PROPERTY NUMBER]

[STREET NAME]

[ZIP CODE]

Yes

No

If different from the street address, please provide the mailing address for the property owner and/or the primary point person managing the well. The mailing address for the primary person(s) managing the well is

Property number [USER DATA ENTRY]

Street Name [USER DATA ENTRY]

Zip Code [USER DATA ENTRY]

Yes, the above is the correct address for the primary person(s) managing the well.

No, the above is NOT the correct address. The following is the correct mailing address for the primary person(s) managing the well

Property number [USER DATA ENTRY]

Street Name [USER DATA ENTRY]

City [USER DATA ENTRY]

State [USER DATA ENTRY]

Zip Code [USER DATA ENTRY]

The above is NOT the correct address. I do not know the correct mailing address for the primary person(s) managing the well.

You may consider me the primary contact for the well at this time.

ABOUT PROPERTY OWNERSHIP AND USAGE

Are you the property owner at this address?

Yes

No

How long have you owned this property?

I have owned this property since [MONTH DROPDOWN] [YEAR DROPDOWN]

As owner, which best describes your relationship to this property?

I am the owner and this is my primary residence.

I am the owner. I use this as a second home / vacation residence.

As a second home I use this property primarily

Winter (January – March)

Spring (April – June)

Summer (July – September)

Fall (October – December)

throughout the year

at random, there is no particular season I am here.

I am the owner. I rent out this property as a vacation rental.

I am the owner. I rent out this property as a long-term rental.

Is there a business on this property?

Yes

No

Please select the best description of the business(es) use of this address.

Bed/Breakfast

Hotel/Motel

Apartment

Mobile Home(s)

Resort

Restaurant

Since you are not the property owner, what is your relationship to this property?

Long-term renter

Seasonal renter

As a long-term renter when did your time in residence at this address start?

[MONTH DROPDOWN] [YEAR DROPDOWN]

As a seasonal renter when did your time in residence at this address start?

[MONTH DROPDOWN] [YEAR DROPDOWN]

ABOUT THE WELL

Is there a groundwater well at this property?

- Yes, there is a well.
- No, to my knowledge there is not a well.
- I do not know if there is a well on this property.

Is the well in use?

- Yes, the well is used.
- No, the well is not used.
- I do not know whether the well is used.

Do you know the location of the well?

- Yes, I know the well location specifically.
- Yes, I know the well location generally.
- No, I do not know the well location.

[THIS SECTION VARIES WITH ONLINE VS IN-PERSON SURVEY]

May [I/we] view the well?

Today?

At a future date?

{desired outcome to be discussed}

ABOUT WATER USE

Is the well used?

- Yes, the well is used.
- No, the well is not used.
- I don't know if the well is used.
- I think the well is abandoned.

The well is used.

- Nearly every day.
- more than 90 days a year
- between 60 and 90 days a year
- between 30 and 60 days a year
- less than 30 days a year
- rarely, only to check or maintain it... less than 15 days a year

Is the well the primary source of household water?

- Yes, the well is the primary source of household water
- No, the well is not the primary source of household water, but is a secondary source

No, the well water is not used for household purposes but is used for irrigation and outdoor applications

Yes, the well is the primary source of household water and is used for (check all that apply)

- drinking
- cooking
- cleaning
- irrigation

With what (approximate) frequency is the well in use in a year?

- between 60 and 90 days a year
- between 30 and 60 days a year
- less than 30 days a year
- rarely, only to check or maintain it... less than 15 days a year

The well is the primary source of household water. Is there a secondary, or backup, source?

- Yes
- No

The secondary/backup source of household water is

[USER DATA ENTRY]

ABOUT THE WELL WATER QUALITY

What qualities of the well water do you like?

- Taste
- Color
- Odor
- Other: Please write in your response. [USER DATA ENTRY]

What qualities of the well water do you dislike?

- Taste, color, odor
- Scale
- Corrosion
- Other: Please write in your response. [USER DATA ENTRY]

Do you now or have you ever had any concern about the well water?

- Yes
- No

The well water concern was in regard to

- Absence of water
- Inconsistent water supply / lack of water

- Qualities of the water
- Taste
- Color
- Odor
- Other: Please write in your response. [\[USER DATA ENTRY\]](#)

My concern about the well water was

- In the past year
- Between 1 and 2 years ago
- More than 2 years ago

Was the concern about the well water resolved?

- Yes
- No

How was the concern resolved?

- I contacted local government agency.
- I had the water quality tested.
- I flushed the well.
- I installed a water quality treatment system.
- Other: Please write in your response. [\[USER DATA ENTRY\]](#)

ABOUT THE WATER WELL CONDITION

What do you like about maintaining a well?

- Lifestyle
- Self-regulated
- Environmentally friendly
- Economical
- Connectivity to nature

What do you dislike about maintaining a well?

- Vulnerability to changes in water supply
- Vulnerability to changes in water quality - possible exposure to pollutants adverse to health
- Maintenance cost
- Maintenance time
- Uncertainty about how to manage my well to protect health and ensure water supply

Do you now or have you ever had any concern about the well infrastructure?

- Yes
- No

The well infrastructure concern was in regard to

- Well pump failure
- Well aging (e.g. corrosion, scale)
- Wellhead in disrepair or lacking a tight seal
- Well connection to house

My concern about the well infrastructure was

- In the past year
- Between 1 and 2 years ago
- More than 2 years ago

Was the concern about the well infrastructure resolved?

- Yes
- No

How was it resolved?

- I fixed it myself.
- I hired someone to fix it.
 - Local water well contractor
 - Plumber
 - Neighbor
 - Abandoned and replaced the well
 - Other: Please write in your response. [\[USER DATA ENTRY\]](#)

ABOUT SUPPORT AVAILABLE TO WELL OWNERS, USERS AND MANAGERS

If you will shut down the well; Do you intend to replace the well?

- Yes, I intend to replace the well.
- No, I do not intend to replace the well.

If you intend to replace the well, would you like to receive information about County Well Abandonment Procedures and Requirements?

- Yes, I would like to receive County information.
- No, I would not like to receive County information.

Would you like information about connecting to a public water system?

- Yes, I would like to know more about connecting to the public water system.
- No, I don't need any information about connecting to the public water system.

What information do you have and maintain about your well?

- Water well driller's report
- Water well inspection report
- Water quality reports
- Other

I do not have any information about the well

What are your sources of information about managing your well?

- Other well owners advice (in this watershed)
- Other well owners advice (not in this watershed)
- Independent research
 - Online
 - Library
 - Newspaper
 - Local water agency
 - Other

Which of the following would you allow the South Tahoe Public Utility District to gather about your well?

- Well location
- Well construction
- Groundwater level
- Water quality
- Water production
- Other
- None of the above

ABOUT GROUNDWATER

What do you consider the top three groundwater issues in our South Tahoe community? (select 3)

- groundwater contamination
- climate change
- mutual well interference effects
- groundwater regulation
- growth; future water demands
- Other [\[USER DATA ENTRY\]](#)
- I do not believe there are any groundwater-related issues in the South Shore area.

South Tahoe Public Utility District, in collaboration with a stakeholders advisory group, developed a groundwater management plan. A copy of the plan is on the District's website [\[LINK, WEB ADDRESS\]](#).

Would you like to receive occasional District email updates about South Tahoe groundwater and well management and the work of the stakeholder advisory group?

- Yes, I would like to be on the District's groundwater email list
- No, I would NOT like to be on the District's groundwater email list

Would you like to be considered for membership on the South Tahoe Groundwater Advisory Group? The group advises the District regarding current local groundwater issues and is a venue for sharing information at the nexus of state and local groundwater management.

Yes, I would like to be considered for membership on the advisory group

No, I would NOT like to be considered for membership on the advisory group

FOLLOW UP

What is your preferred medium for communicating with the District about well maintenance and groundwater? (*This does not apply to any other correspondence you have with the District.*)

mail, US postal service

email

home phone

mobile phone

other, please specify [\[USER DATA ENTRY\]](#)

I prefer not to communicate with the District

SURVEY BACKGROUND [or FOR SOUTH TAHOE PUBLIC UTILITY DISTRICT]

Well [ID]:

Survey date: [\[SCROLL MENU\]](#)

Survey time: [\[SCROLL MENU\]](#)

Survey completed by: [\[DROP DOWN\]](#)

This survey has been completed [\[DROP DOWN\]](#)

online with internet connection

offline, in online format

on paper, filled out by addressee, returned by mail

on paper, filled out by survey team

Well location street address of record: [\[DATA ENTRY\]](#)

Street address identical with record?

Yes

No

[Neighborhood]: *This is a placeholder. Do we want to identify if the well is in a particular neighborhood or area of affiliated homeowners? What is the preferred language for this?*

[PAGE BREAK / NEW SCREEN]


For more information about stewarding the groundwater resource and your well in partnership with South Tahoe Public Utility District. follow these links

- Maintaining a private well

- California's Groundwater Management Act
- Help for well owners available through your local Groundwater Sustainability Agency



**AGENDA REQUEST
Regular Meeting, April 12, 2017**

TO: Board of Directors
FROM: Kenneth V. Payne, Interim General Manager 
DATE: April 12, 2017
SUBJECT: Update on the GSA Formation Notice to the California Department of Water Resources for the portion of the Tahoe Valley South Groundwater Basin covered by the 2016 GSA Formation Notice by the South Tahoe Public Utility District

BACKGROUND/DISCUSSION:

On September 8, 2016, the El Dorado County Water Agency (Agency) Board of Directors adopted the Memorandum of Understanding between the South Tahoe Public Utility District (District) and the El Dorado County Water Agency for the Tahoe Valley South (TVS) Groundwater Basin. The District has been recognized as the exclusive GSA for the portion of the TVS Basin within its jurisdiction. Through the adopted MOU, the District submitted a groundwater sustainability agency formation notice (“GSA Formation Notice”) to DWR on September 16, 2016 for the portion of the TVS Basin outside of its jurisdiction (“2016 GSA Formation Notice”) to cooperatively manage and coordinate implementation and enforcement of SGMA in this portion of the Basin.

#continued#

(Attachment A: Groundwater sustainability Agency (GSA) Section 10723.8 Notification Map—Tahoe Valley South Subbasin (6-5.01) GSA Boundaries)

KP/jvl

RECOMMENDATION:

Staff recommends the Board receive the update on the GSA Formation Notice to the California Department of Water Resources for the portion of the Tahoe Valley South Groundwater Basin covered by the 2016 GSA Formation Notice by the South Tahoe Public Utility District.

ACTION OF AGENCY ON:

VOTE:

Unanimous _____ or

Ayes:

Noes:

Abstentions:

Absent:

I hereby certify that this is a true and correct copy of an action taken and entered into the minutes of the Board of Directors, El Dorado County Water Agency.

Date _____

Attest:

By _____

Clerk of the Agency

Recent discussions with the State Water Resources Control Board have raised concerns about a water agency forming a GSA outside of its jurisdiction. These concerns raise a risk that the District's 2016 GSA Formation Notice may be considered invalid and that the TVS Basin could potentially be designated as "probationary" by the SWRCB and be put under state management. To ensure that the Agency and the District are able to retain local control of the TVS Basin's groundwater resources, staff of both agencies recommend that the District rescind its 2016 GSA Formation Notice and that the Agency file a GSA Formation Notice for the portion of the TVS Basin covered by the 2016 GSA Formation Notice (see attachment A, Tahoe Valley South Subbasin (6-5.01) GSA Boundaries).

Background

The Agency and STPUD continue to work on water management activities that include the Tahoe Valley South Groundwater Basin. These activities are intended to enhance local management of groundwater and establish minimum standards for sustainable groundwater management.

The Sustainable Groundwater Management Act ("SGMA") requires that a Groundwater Sustainability Agency ("GSA") must be formed in all medium- and high-priority groundwater basins within California by June 30, 2017. SGMA authorizes a local agency overlying a groundwater basin to form a GSA; "local agency" is defined as a "local public agency that has water supply, water management, or land use responsibilities within a groundwater basin." (Wat. Code § 10721(n).) The Tahoe Valley South Groundwater Basin ("TVS Basin") has been designated a medium-priority basin.

The TVS Basin lies entirely within El Dorado County, and largely within the jurisdiction of the South Tahoe Public Utility District ("District"). Since November 17, 2015, the District has been recognized as the exclusive GSA for the portion of the TVS Basin within its jurisdiction. Last summer, the El Dorado County Water Agency ("Agency") and the South Tahoe Public Utility District ("District") began discussing options to form a GSA in the portion of the TVS Basin outside of the District's jurisdiction. Pursuant to these discussion—as well as additional conversations with the Department of Water Resources—the Agency and the District determined that it would be appropriate for the District to become the GSA for the portion of the TVS Basin outside of its jurisdiction (i.e., within the Agency's jurisdiction). Concurrent with this decision, the Agency and the District drafted a Memorandum of Understanding ("MOU") setting forth the Agency's and the District's agreement to cooperatively manage and coordinate implementation and enforcement of SGMA in this portion of the Basin. The Agency and the District subsequently entered into this MOU and the District submitted a groundwater sustainability agency formation notice ("GSA Formation Notice") to DWR on September 16, 2016 for the portion of the TVS Basin outside of its jurisdiction ("2016 GSA Formation Notice"). Recent discussions with the State Water Resources Control Board, however, have raised concerns about an agency forming a GSA outside of its jurisdiction. These concerns raise a risk that the District's 2016 GSA Formation Notice may be considered invalid and that the TVS Basin could potentially be designated as "probationary" by the SWRCB and be put under state management.

To ensure that the Agency and the District are able to retain local control of the TVS Basin's groundwater resources, staff and legal counsel of both agencies recommend that the District rescind its 2016 GSA Formation Notice and that the Agency file a GSA Formation Notice for the portion of the TVS Basin covered by the 2016 GSA Formation Notice. As part of this approach, the Agency and the District also plan to renegotiate the MOU to specify that, if necessary, the District would be in charge of developing a Groundwater Sustainability Plan ("GSP") for the entire TVS Basin, which the Agency would adopt and implement within its jurisdiction.¹

Timeline

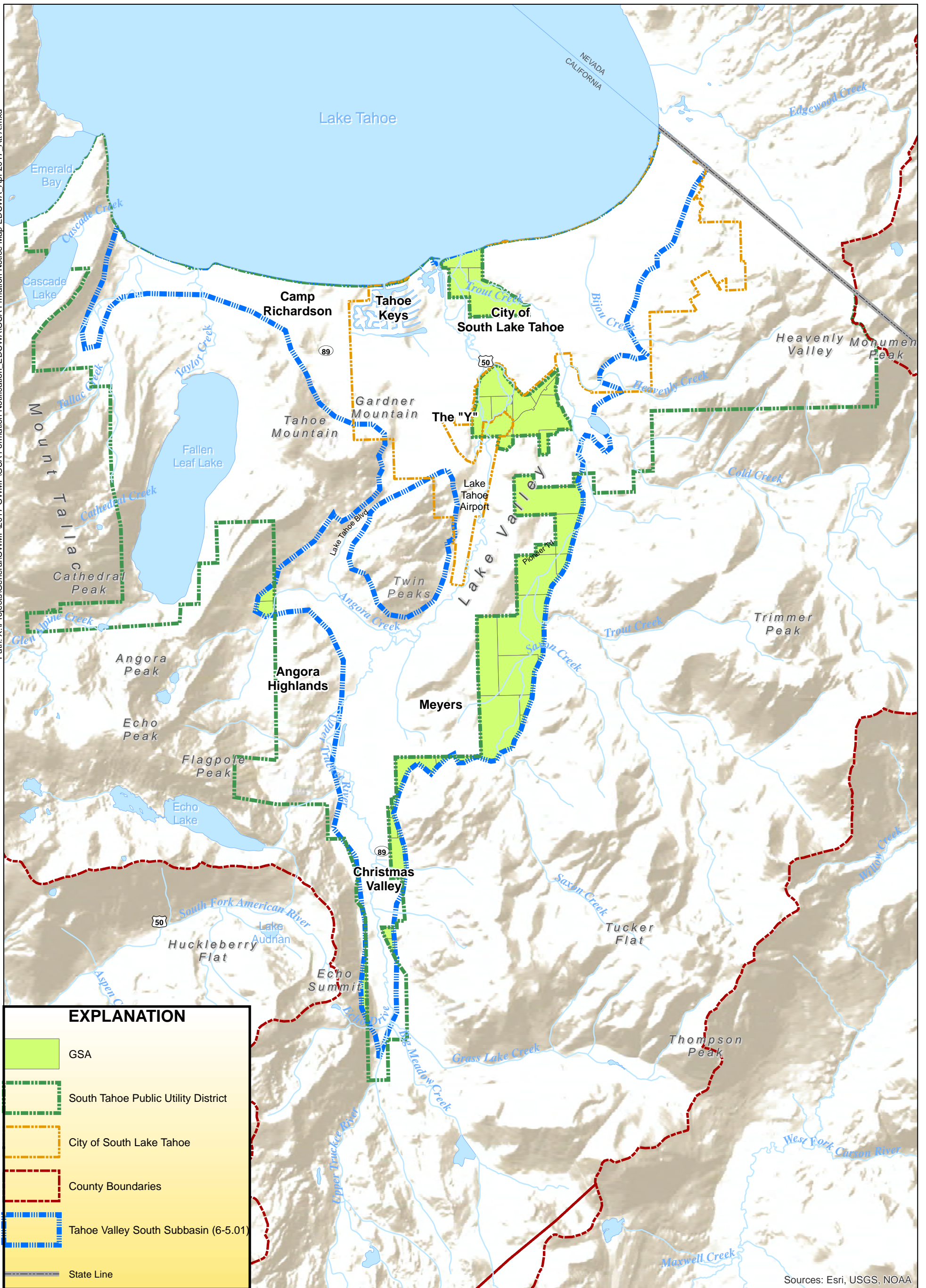
SGMA requires formal procedures to be followed in order to become a GSA. First, a local agency is required to hold a noticed public hearing to receive public comment on the local agency's decision to become the GSA for the basin. The noticing must comply with section 6066 of the Government Code.² At the conclusion of the public hearing, the local agency must adopt a resolution electing to act as the GSA for the basin. Within thirty days of the public hearing, the local agency is required to submit multiple documents to DWR, including (1) a resolution electing to act as the GSA for the basin, (2) a map outlining the jurisdiction of the newly created GSA, and (3) a list of interested parties developed pursuant to the Water Code Section 10723.2 and an explanation of how their interests will be considered in the development and operation of the GSA and the development and implementation of a GSP. Barring any challenges, the local agency would be recognized as the exclusive GSA for the basin within ninety days of the date DWR posts a copy of the GSA Formation Notice to its website.

Below is a potential timeline for the Agency's adoption and submission to DWR of a GSA Formation Notice. The District has agreed to assist the Agency with preparation of all necessary documents.

- Deadline to Submit Notice Language to Mountain Democrat: 10 a.m. on May 1, 2017
- Publication of Notice in Mountain Democrat: May 3, 2017 and May 10, 2017
- Public Hearing: May 17, 2017
- Submission of GSA Formation Notice to DWR: June 10, 2017
- DWR Posts GSA Formation Notice to Website: June 25, 2017
- County Water Agency Recognized

¹ The District recently submitted two alternative GSPs ("Alternative Plan") to the Department of Water Resources ("DWR") for their review under SGMA. As long as one of these two Alternative Plans is accepted, the requirement to development and implement a GSP would not apply to the TVS Basin.

² Section 6066 of the Government Code requires publication of notice "once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day."



El Dorado County Water Agency

Groundwater Sustainability Agency (GSA)
Section 10723.8 Notification Map

**Tahoe Valley South Subbasin (6-5.01)
GSA Boundaries**

